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THE ACES®

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István Tópercz

MiG-17/19 ACES OF THE VIETNAM WAR



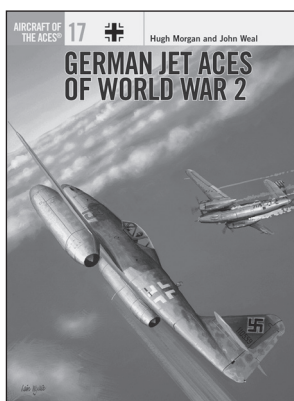
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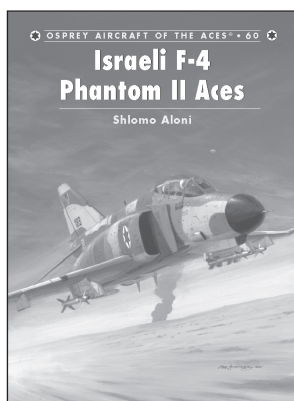
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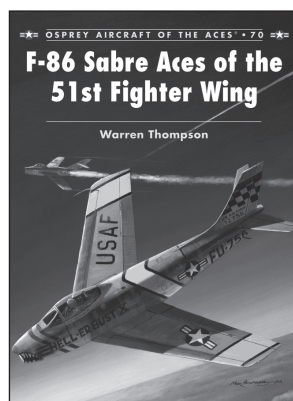
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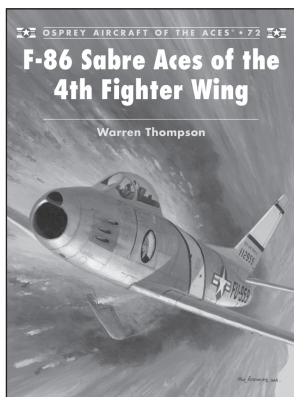
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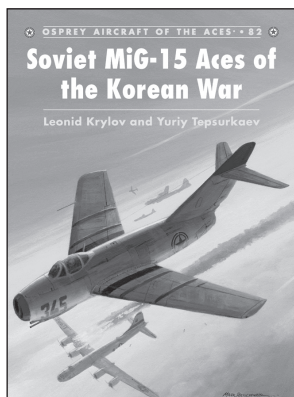
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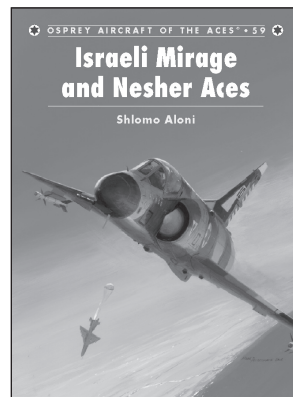
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SERIES EDITOR TONY HOLMES

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István Tóperczer

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Front Cover

During the afternoon of 17 December 1967, a flight of MiG-17s assisted three MiG-21s in their attack on a formation of 32 F-105s and F-4s bound for Hanoi. While the MiG-21s scattered the bombers and brought down three F-105s, the Gia Lam-based MiG-17s intercepted the Phantom IIs.

At 1518 hrs, the jets flown by Luu Huy Chao (2039), Nguyen Hong Thai, Bui Van Suu and Le Hai had taken off from Gia Lam to intercept enemy fighters detected west of Hanoi that were targeting the Lang Lau railway bridge. After ten minutes, Luu Huy Chao spotted four F-105s and four F-4s at a distance of ten kilometres. He quickly got on the tail of one of the Phantom IIs near Yen Bai, firing three bursts from his cannon that shot down F-4D 66-7774. The aircraft, flown by Maj K R Fleenor and 1Lt T L Boyer of the 8th Tactical Fighter Wing's 497th Tactical Fighter Squadron, crashed near Phu Tho on the Red River. Both pilots ejected and were captured.

Seven minutes later, Bui Van Suu also shot down an F-4C Phantom II, but Nguyen Hong Thai was killed in action by Capt D D Baker and 1Lt J D Ryan of the 432nd Tactical Fighter Wing's 13th Tactical Fighter Squadron, in F-4D Phantom II 66-8719. The remaining three MiG-17 pilots landed their jets safely at Gia Lam airfield (*Cover artwork by Gareth Hector*)

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INTRODUCTION

This book is about the young Vietnamese airmen who demonstrated extraordinary courage in aerial combat during the 1960s and early 1970s. They fought a powerful and highly trained enemy and the success they achieved enabled a relatively small number to achieve five or more aerial victories and become acclaimed as aces. But how were these young pilots able to acquire and demonstrate the skills, as well as the physical and mental qualities, needed to achieve such success against a well-equipped and technically advanced foe?

Many began their military service between the ages of 18 and 20. After the rigours of pilot selection and flying training they were between 25 and 30 by the time they reached operational units. These men were immediately involved in aerial combat, which meant that those individuals who survived their early encounters with a dangerous enemy were able to rapidly develop situational awareness, combined with both daring and restraint, to allow them to build up their scores. On both sides there was a mix of experienced and 'rookie' pilots, and when it came to aerial success much depended on being in the right place at the right time. Ultimately, the outcome of the battles fought in North Vietnamese airspace demonstrated once again that there was no substitute for the ability to swiftly size up a situation and act accordingly.

During the Korean War of 1950-53, MiG-15 fighters had operated in North Korean markings from Chinese airfields north of the Yalu River that

were declared off-limits to US pilots. When the communist jets came south of the Yalu, however, they were fair game for USAF F-86 Sabres. American fighter squadrons were duly credited with at least seven MiG-15s for every F-86 that was lost. Many of the Sabre pilots were World War 2 veterans who proved to be better trained and more experienced than their Soviet, North Korean and Chinese opponents.

A decade later, North Vietnamese pilots found themselves overwhelmingly outnumbered by modern American aircraft, many of which were again flown by experienced combat veterans. Yet even though the MiG-17s operated by the Vietnamese People's Air Force (VPAF) were hardly in the first flush of youth, the design being based upon that of the MiG-15 which had fought in Korea, they were still able to offer a surprisingly stern challenge to the intruders. The gradual escalation of the US bombing campaign gave the MiG pilots the opportunity to gain experience, and they were buoyed by their early successes.

The VPAF's aerial combat strategy was based on an intriguing blend of Soviet technology and the guerrilla tactics so effectively used on the ground by communist forces. This involved close cooperation between VPAF pilots and Ground Control Interception (GCI) and, later, surface-to-air missile (SAM) and anti-aircraft artillery (AAA) units. As a result, American F-4 Phantom II, F-8 Crusader and F-105 Thunderchief crews often had to contend with both SAM and AAA fire before being attacked by North Vietnamese MiGs. US pilots had been trained to believe that aerial warfare would involve radar-guided missile engagements fought beyond human sight at speeds of around Mach 2.0. Now, however, they were having to adjust to a dangerous close-range environment that favoured the quick and the nimble. And it was the MiG-17 with its superior manoeuvrability and turning ability that excelled at the low altitude close-range ambushes and subsonic dogfights that were the hallmarks of the air war over North Vietnam.

Paradoxically, the North Vietnamese were not fully able to exploit the tactics they were forcing their opponents to adopt. Although the VPAF pilots' Soviet and Chinese mentors had clearly learned lessons from the Korean War, North Vietnamese pilot training was never as consistent as that available to their American opponents. And there were two further handicaps. VPAF pilots were closely linked to their GCI command posts, restricting initiative in the face of the unexpected. And tactics changed from day to day, which confused and hindered the less-proficient North Vietnamese pilots as much as it did the Americans.

From the start, however, the MiG pilots harboured few illusions about their capability and limitations. They knew they lacked the aircraft to waste in fighter-versus-fighter duels so they adopted 'hit-and-run' tactics. As the war unfolded they quickly learned important lessons and were able to develop their tactics accordingly.

The VPAF created its first MiG-17 unit, the 921st Fighter Regiment (FR), on 3 February 1964 after its pilots had received training in China. The second unit, the 923rd FR, followed on 7 September 1965. In February 1969, the Ministry of Defence (MoD) decided on the creation of the 925th FR to be equipped with Chinese-built MiG-19 fighters. These three units played a major role in the war, as well as helping their pilots to develop the qualities needed to become aces between 1965 and 1972.

The North Vietnamese MiG-17 aces came from different generations and were active during different periods of the air war. During 1966-67, the group of MiG-17 pilots that comprised Le Quang Trung, Nguyen Van Bay, Luu Huy Chao and Vo Van Man achieved the five victories qualifying them as aces in 12 to 24 months. The next generation, with pilots like Nguyen Phi Hung and Le Hai, was able to reach the same status in six to 12 months during 1967-68.

The MiG-17 aces claimed a combined total of 34 aerial victories, comprising eight F-105 Thunderchiefs, 16 F-4 Phantom IIs, seven F-8 Crusaders, two C-47s and an AQM-34 Firebee drone between 1965 and 1972. Although three MiG-17 pilots – Phan Van Tuc, Bui Van Suu and Hoang Van Ky – did not manage to achieve the five aerial victories to qualify them as aces, they were collectively responsible for a further 12 American losses.

More than four decades have passed since the end of the air war over Vietnam. This work chronicles the careers of the VPAF MiG-17 aces from what might be termed ‘the other side’.

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CHAPTER ONE

SWALLOWS LEAVE THE NEST

In April 1959 the VPAF received eight Zlin Z-226 Trainer 6 aircraft from Czechoslovakia. Mechanics from the latter country are seen here assisting Vietnamese engineers in the assembly of one of the trainers (VPAF Museum, Hanoi)

In the turbulent years that followed the Japanese surrender in Indochina at the end of World War 2, the French were striving to re-establish colonial rule over the country while the Vietnamese, under legendary resistance leader Ho Chi Minh, were equally determined to prevent them and to set up an independent state. Bitter fighting ensued, but by 1950 the Vietnamese People's Army had established itself as a force with credible offensive capability on the ground. However, it was virtually powerless to prevent the French from mounting aerial reconnaissance and ground-attack missions against it.

The Vietnamese government did, however, have its own aircraft, deposed emperor Bao Dai having handed over his own private de Havilland Tiger Moth biplane and Morane-Saulnier MS.343 parasol monoplane – both trainers – in 1945. A further four years would pass before additional steps were taken to establish an air arm.

In early 1949 Gen Vo Nguyen Giap, Commander of the MoD, Brig Gen Hoang Van Thai, Chief of Staff, and Phan Phac, Chief of Military Training, sought Ho's authority to establish air and naval elements within the army. On 9 March the MoD created the Air Force Research Committee (Ban Nghien Cuu Khong Quan). Using the codename 'Experimental Farm', it was based in the village of Ngoi Liem, in Huu Loc commune (Tuyen Quang), and headed by Ha Dong. Its mission was to lay the foundations of an air arm and, at the same time, fully understand the French *Armée de l'Air* and its capability and consider how it could be defeated.

The next move was to start training personnel. Its first four-month-long course focused on training 28 student-navigators and finished in early 1950. The second began in May 1950 with 87 students in three classes for navigators, meteorologists and mechanics. After completing the theoretical elements, students moved to Chiem Hoa to become familiar with the two government-owned aircraft. The committee, meanwhile, was conducting its own studies into airfield and airport construction, as well as the establishment of a ground-based defensive system. This initially involved nothing more sophisticated than infantry weapons such as rifles and machine guns. Rudimentary anti-aircraft weapons using dual machine-gun mountings were produced and sighting systems developed.

However, as the war against the French entered its closing stages the committee's work was halted and its equipment mothballed to enable the army to concentrate on defeating the colonialists by building up its artillery component. Eventually, all of 'Experimental Farm's' documentation and equipment was either lost or damaged.

In the mid-1950s clandestine attempts were made to establish the basis of an air arm, despite this not being allowed under the terms of the 1954 Geneva Accords, which was implemented after the French defeat at Dien Bien Phu and the partitioning of the country. Nevertheless, the North's People's Army of Vietnam (PAVN) began selecting candidates for training in China. The selection procedure was rigorous. Not only were candidates expected to have the right educational qualifications and levels of physical fitness, they were also expected to have a 'clear and clean' family and political background. Such was the strictness of this procedure that only one in every 100 candidates was judged to have the necessary qualifications.

Although the generally smaller stature of the Vietnamese meant that their levels of physical strength were usually below that of their Western or Soviet counterparts, the key deficiency was in education. Standards were generally low among the initial batch of student pilot candidates, many of whom had been farm and factory workers before enlisting in the army. According to Gen Nguyen Chi Thanh, the 60 selected pilots would have to 'overcome any deficiencies compared with potential adversaries through their solidarity to their comrades, as well as by exploiting their inherent qualities of intelligence, flexibility and manual dexterity'.

By 1956 the North Vietnamese were ready to send their first students for flying training abroad. It was inevitable that the government would turn to friendly nations, particularly its powerful neighbour China as well as the Soviet Union, which was to be the source of so much of the technology, and Czechoslovakia. The first 80 students left for China on 24 February 1956. They were divided into two groups, with 50 commanded by Pham Dung set to receive fighter pilot training, while the remaining 30 led by Dao Dinh Luyen were to receive instruction on the Tupolev Tu-2 bomber. However, changing priorities meant that Dao Dinh Luyen assumed leadership of the fighter pilot group at No 2 Flight College at Changchun, in Jilin Province, China. Pham Dung headed the other group, now receiving instruction on the Li-2 transport and Mi-4 helicopter.

By 1957 the would-be fighter pilots had progressed to the MiG-15. Between 1956 and 1964 this group included Tran Hanh, Pham Ngoc Lan, Nguyen Nhat Chieu, Le Quang Trung, Phan Van Tuc, Lam Van Lich,



The first class of the Air Force Research Committee (Ban Nghien Cuu Khong Quan) was established on 9 March 1949 under the command of Ha Dong. Its mission was to lay the foundations of a future air arm (VPAF Museum, Hanoi)



On 24 February 1956 the first 80 North Vietnamese students left for China to undertake flying training. Dao Dinh Luyen assumed leadership of the fighter pilot group at No 2 Flight College at Changchun, in Jilin Province (VPAF Museum, Hanoi)

Ho Van Quy, Nguyen Van Bien and Le Trong Long, who would become well known for their wartime exploits. Four years of study at the Chinese Flight College was followed by a further four years flying with the People's Liberation Army Air Force. In eight years, therefore, they absorbed much of the knowledge in respect to flying techniques and tactics that would subsequently stand them in good stead in combat.

However, the Vietnamese cadets found themselves hampered by their low educational standards to such an extent that many of them had to go back to the classroom. Nguyen Van Bay, for example, had seven days to acquire knowledge normally gained in seven years at school! A further difficulty was the lack of interpreters, which meant that the students and their Chinese instructors had to communicate mainly via sign language. The end result was that many Vietnamese cadets were not able to make the passing grade.

There was little difference between the Chinese and Soviet pilot training systems, both of which were to be used by the VPAF. Students spent a year on theoretical training, which included subjects like meteorology and aerodynamics, as well as studying the equipment and weapons systems in use. Although this was generally similar to the syllabus followed by students in the USA and other western countries, the Vietnamese student pilots struggled due to their limited educational background. In practical terms this meant that they had to concentrate harder during the frequent training flights they made with their compatriots as well as with pilots from China and other communist countries.

The quality of Chinese pilots had been disparaged by the West following their inferior showing in the Korean War, when USAF pilots had achieved a seven-to-one kill-to-loss ratio in fighter-versus-fighter combat, despite the obvious quality of the MiG-15 opposition. Yet it was during this early period of instruction in China that Vietnamese pilots were taught the basics of the combat doctrine they would use against their American opponents in the following decade. US airmen might have had technical and numerical superiority, but the Vietnamese were convinced that their tactics could redress the balance. An ability to concentrate their forces at the right time and place, they believed, might enable VPAF fighter pilots to take the initiative in combat. All that lay some way off in the future, however.

TRAINING AT HOME

In mid-1956 a party of 12 students was sent to Czechoslovakia to study the two-seat Zlin Z-226 Trener 6 training aircraft. Cover for the visit was provided by the Vietnam Air Club (Cau Lac Bo Hang Khong Viet Nam), which had been established in January of that year. By the end of 1956 the Vietnamese MoD was able to establish its first training units for air force personnel at Cat Bi airfield. No 1 Training School (Truong Hang Khong So 1) employed Chinese instructors to train technical personnel in such disciplines as meteorology, signals and engineering, while No 2 Training School (Truong Hang Khong So 2) at Gia Lam provided tuition to radio operators and mechanical engineers. It was equipped with three Czech-built Aero Ae-45 aircraft that had arrived earlier in the year via China.

In April 1959 No 1 Training School received eight Zlin-226 Trener 6s from Czechoslovakia and eight Yak-18s from China. The first 25 pilots to graduate – 12 on the Zlin-226s and 13 on the Yak-18s – went on to become instructors at the school alongside five Czechs. The first 30 cadets to be locally trained began their course at Cat Bi on 31 May 1959. Under order 427/ND, dated 20 August 1959, the MoD established the 910th Training Regiment (Trung Doan Khong Quan 910), whilst the Air Force Training School (Truong Khong Quan Viet Nam), equipped with Yak-18s, was created with order 429/ND on 30 September that same year.

Meanwhile, in late 1959, following an MoD directive, the second fighter training group was formed to undergo instruction in China. Led by Maj Nguyen Phuc Trach, its first 12 members included pilots who were to become better known for their subsequent exploits. They included Nguyen Van Bay, Luu Huy Chao, Vo Van Man, Tran Ngoc Siu, Nguyen Van Lai, Tran Huyen, Ngo Duc Mai, Le Trong Huyen, Dong Van De and Nguyen The Hon. They were joined at Cat Bi airfield by 50 more cadets, under Mai Duc Toai, from the Army Education School in Lang Son. Here, they received physical training and foreign language instruction.

In early 1960 the students went for medical tests at Army Hospital No 108, Nguyen Phuc Trach being the group leader and Tran Manh its commissar. The group now numbered 61 cadets, and in February 52 of them who had already received some training on the Yak-18 were sent to China to begin combat pilot training. They were now led by Tran Manh, with Nguyen Phuc Trach as deputy commander. By early 1963 the group had completed the MiG-15 course and returned to Cat Bi, where pilots were to maintain their flying proficiency at the controls of the Yak-18.

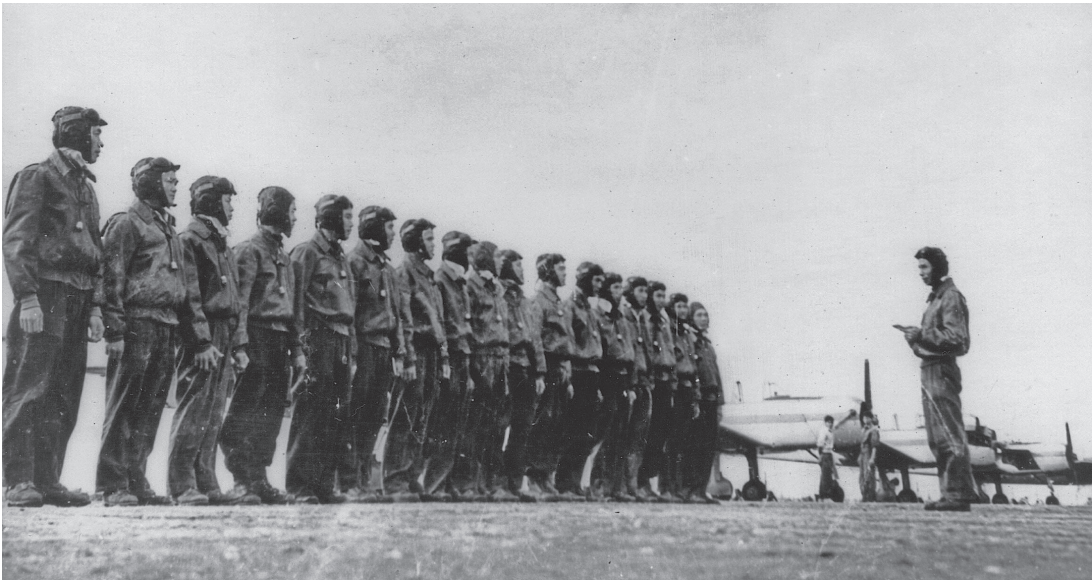
Abroad, the second group of prospective fighter pilots had been sent to China in 1960 for advanced training on the MiG-15 and for conversion onto the MiG-17. By December 1962 the first groups to leave Vietnam had received fighter pilot training in the Soviet Union as well as in China. Twelve months later, 70 aviators had achieved at least reasonable proficiency on the MiG-17. Of these, 33 had become particularly proficient. In addition, around 200 technical service personnel were moved to the Chinese base at Mengzi, in Yunnan Province. This location, close to the border with North Vietnam, meant that they could return home at short notice should the need arise.

The momentum of pilot training increased in the mid-1960s so that by the summer of 1965 the 30 returning fighter pilots doubled the number available. Still more were ordered to train as fighter pilots instead of receiving instruction on transport aircraft. The tempo increased in September 1965 when 80 cadet pilots and technicians left for China to receive training on the supersonic MiG-19 fighter.

In 1967 two-thirds of frontline MiG-17 pilots were moved on to the MiG-21, while freshly trained MiG-17 pilots were immediately sent into battle. Fourteen more pilots graduated from the 910th Training Regiment



The VPAF's 910th TR operated the Czech-built two-seat Zlin Z-226 Trener 6s as primary trainers at Cat Bi airfield from May 1959 (*Museum of the 371st AD*)



North Vietnamese cadets went to China for basic training on Yak-18s, and in April 1959 13 of them returned home to become instructors at the No 1 Training School at Cat Bi airfield (*Embassy of Vietnam in Hungary*)

(TR) in January 1968, and they were all posted to the two frontline fighter regiments. The following year, VPAF Headquarters and the chiefs of staff decided to expand combat capability. Ten MiG-17 pilots were selected for ground-attack missions in 1971, and by March 1972 six pilots were qualified to attack maritime targets. Furthermore, from early 1972, there was a steady increase in the number of pilots able to fly combat missions in adverse weather and at night.

Following the VPAF's efforts to oppose the near-overwhelming Operation *Linebacker II* offensive, which ran from 11 to 29 December 1972, training units began to run low on aircraft. This meant seeking Chinese help once again. By February 1974, following the arrival of replacement fighters from China, MiG-17 training flights were carried out by the 923rd FR at Kien An, Tho Xuan, Vinh and Dong Hoi.

TRAINING IN THE USSR

From the early 1960s the majority of North Vietnamese MiG pilots received their training in the Soviet Union. They included such notable aviators as Nguyen Phi Hung, Bui Van Suu, Hoang Van Ky, Nguyen Quang Sinh, Nguyen Dinh Phuc and Ha Bon. The Krasnodar Flight Officers' School in the eastern region of the Black Sea and Sea of Azov had four airfields attached to it. Throughout the 1960s and into the early 1970s a variety of aircraft types were used for training at Bataysk, Primorsko-Ahtarsk, Kushchovskaya and Krasnodar. Here, the North Vietnamese, Hungarian and Cuban cadets formed separate squadrons, although they came together for theoretical instruction and flying training.

The North Vietnamese cadets faced an intensive and gruelling training programme. The dropout rate was so high that by the mid-1960s only 20 per cent of students qualified as pilots, with the remainder becoming ground engineers. A Russian language school was started and students also received instruction in up to 20 theoretical subjects, including



aircraft structures and propulsion systems, the theory of flight, avionics, meteorology, navigation and combat tactics. The theory courses were run during the autumn and winter months, with flying training undertaken in the better spring and summer weather.

Ab initio training in the first year started with theoretical tuition and flights in a Yak-18A at Bataysk, a grass airfield near Rostov-on-Don, and Primorsko-Ahtarsk. After completing 100 flying hours the students moved on to Kushchovskaya and the two-seat MiG-15UTI in the second year, before progressing to the MiG-17 at the same airfield in the third year.

The flying training involved simple aerobatics, cross-country navigation, dogfighting, attacking non-maneuvring aerial targets and ground attack. Such training was, of course, restricted to periods of good weather. Live gun-firing exercises were conducted once or twice a year using the MiG-15UTI or the MiG-17. They flew singly and in elements of two. Cannon magazines were loaded with 30 rounds of ammunition for live firing, although the camera-gun was used for routine air combat training. Once a year students used ejection seat simulators and twice a year made parachute jumps from An-2 aircraft.

There were changes made to the training syllabus in 1966 when Czech-built L-29 Delfin jets replaced Yak-18s at Primorsko-Ahtarsk. Students had to complete 80 hours on the Delfin before moving on to Kushchovskaya and the MiG-15UTI and MiG-17. Graduation entailed 40 hours on each type. In 1968 students found themselves back at Krasnodar, where they had to complete 40 hours on the MiG-21US 'Mongol-B' trainer and MiG-21PFM 'Fishbed-F'. The student group of 1968 was also the first to complete night-flying training, with eight to ten hours on the L-29, followed by ten to 12 hours on the MiG-17 and eight to ten on the MiG-21. Some of the Vietnamese pilots on this course had already completed their flight training on the MiG-17 in China, and they went straight from the L-29 to the supersonic MiG-21.

The L-29/MiG-17/MiG-21 training pattern was maintained into the early 1970s, with all available pilots sent home in 1972 in order to reinforce the VPAF following the initiation of Operation *Linebacker I* on 9 May. After the 1973 Paris Peace Accord came into effect, larger groups of would-be VPAF pilots arrived in the Soviet Union for basic and advanced training.

A VPAF pilot under training taxis MiG-17A 'Blue 61' in at Kushchovskaya after a sortie in 1964. Vietnamese student pilots were expected to complete at least 150 hours of flying in the MiG-17 prior to being posted to a frontline unit (*Ernö Nagy*)

THE VPAF's FIRST STEPS

By early 1959 the North Vietnamese had established a viable network of airfields. It included facilities south of Hanoi at Gia Lam, Vinh and Dong Hoi, Na San, Dien Bien, Lai Chau and Lao Cai in the northwest, Cat Bi, Kien An, Do Son, Tien Yen in the northeast and Lang Son and Cao Bang in the north of the country. Finally, construction of the MiG-17's first home, Noi Bai, started on 1 May 1960 and took five years, with the assistance of Chinese experts, to complete. By mid-1964 the main structures at the base were completed, making delivery of the first MiG-17 fighters from China possible.

The organisation of the country's armed forces was also changing to meet the new challenges. In June 1963 the military's political committee decided to merge the Air Force and the Air Defence Force. This facilitated the formation on 22 October of the Air Defence Forces of the Vietnamese People's Air Force (ADF-VPAF, Phong Khong-Khong Quan Nhan Dan Viet Nam), led by Col Gen Phung The Tai, with Col Gen Dang Tinh as his second-in-command.

The Soviet government's gift of 32 MiG-17s and four MiG-15UTIs had enabled North Vietnamese deputy defence minister Lt Gen Hoang Van Thai to sign order 18/QD on 30 May 1963, establishing the 921st 'Sao Do' (Red Star) Fighter Regiment (Trung Doan Khong Quan Tiem Kich 921) commanded by Lt Col Dao Dinh Luyen. All the MiG pilots graduating from the First Fighter Training Group in China were assigned to the new unit. This meant that a total of 70 pilots, 30 of whom had satisfactorily completed the entire training course, were now available for combat duty. A second fighter regiment was established on 7 September 1965. Designated the 923rd FR, it was equipped with MiG-17s at a time when the 921st was receiving some of the more advanced MiG-21s. By June 1966 further pilots had converted to the MiG-17 in the Soviet Union, with another 18 graduating in November 1966. By the end of the year 60 per cent of them had already tasted combat.

After the arrival of 36 Shenyang J-6s (Chinese-built MiG-19S fighters) in February 1969, the MoD decided to establish a third fighter unit, the

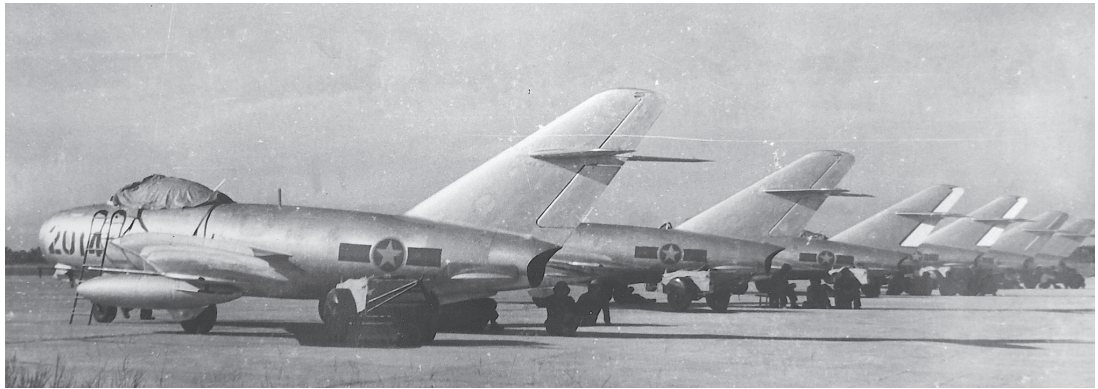
925th FR, equipped with a mix of MiG-17Fs and MiG-19s. Its pilots also represented a mix of those who had qualified on the MiG-21 in the Soviet Union and those who had trained locally with the 910th TR. The first group of MiG-19-qualified pilots had returned from China by January 1969.

COMBAT

On 2 August 1964 the destroyer USS *Maddox* (DD-731) was attacked in the Gulf of Tonkin by North Vietnamese torpedo boats.

The Soviet Union handed over 36 aircraft – 32 MiG-17 fighters and four MiG-15UTI trainers – to the North Vietnamese in 1963. Here, groundcrew are securing a white canvas cover over the forward fuselage and cockpit of a MiG-15UTI at Noi Bai in 1965 in order to protect the aeroplane from the tropical sun (VPAF Museum, Tan Son Nhut)





Until then the Americans had been acting as 'advisers' to the South Vietnamese government, but the attack on the vessel prompted Congress to authorise retaliatory air strikes. North Vietnam's MoD and ADF-VPAF command responded by activating the top secret 'project X-1' to bring the 921st FR back from China.

The man in charge of X-1, chief of the general staff Van Tien Dung, hurried to China to brief his pilots on their impending move. During the morning of 6 August a valedictory ceremony was held at Mengzi airfield, in China's Yunnan Province. With good weather reported at Noi Bai, flights of four MiG-17 'Fresco-As' were able to take off and head southeastwards. The wing commander, Dao Dinh Luyen, together with Pham Ngoc Lan, Lam Van Lich and Chinese pilot Tao Song Minh, was the first to leave. They were followed by three more four-ship formations, making a total of 16 aircraft.

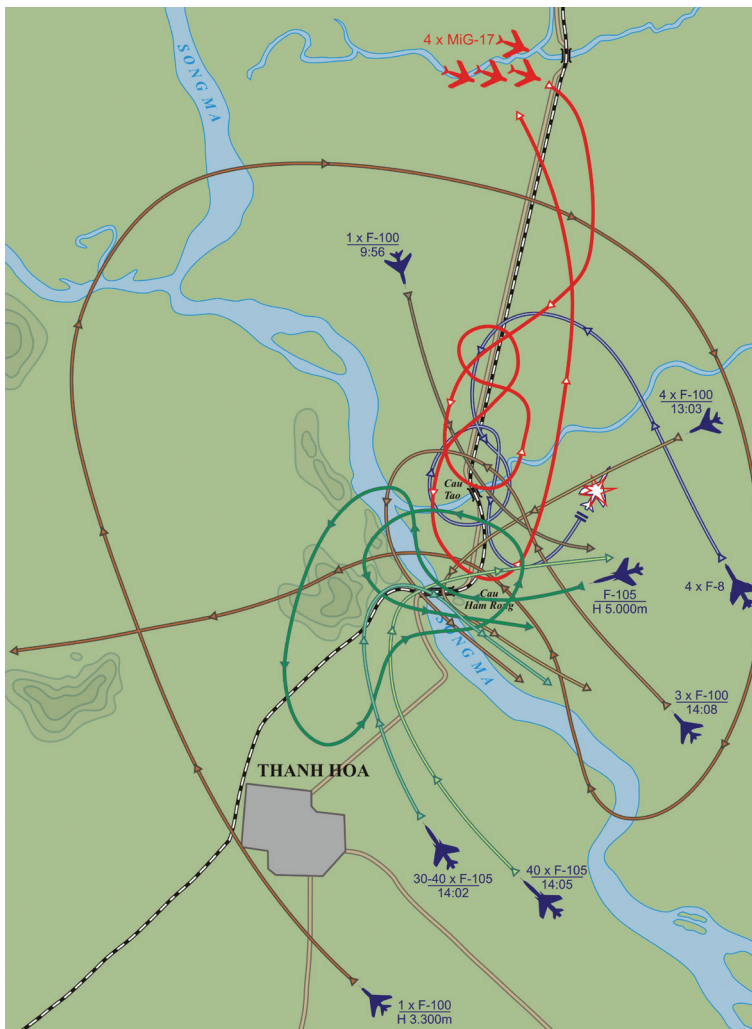
At Noi Bai, Chief of the General Staff Van Tien Dung, VPAF CO Phung The Tai and deputy CO Dang Tinh were present when Pham Ngoc Lan peeled off to land. Once all the 921st FR aircraft were down, the Chief of the General Staff personally welcomed each pilot. The date, 6 August 1964, is commemorated as a significant one in the history of North Vietnam. That same day the VPAF stood up its first two pairs of MiG-17 'Fresco-A' fighters on standby, ready to scramble to meet any intruders. The pilots involved were Pham Ngoc Lan and wingman Lam Van Lich, and Tran Hanh with his wingman, Nguyen Nhat Chieu. Even so, the ADF-VPAF command was well aware that the VPAF was an immature force, with only a handful of trained pilots to meet the more advanced American aircraft flown by highly trained crews. Nevertheless, the North Vietnamese were very proud of their 'én bac' or Silver Swallows, as they called the MiG-17s.

The military party committee and ADF-VPAF command duly held conferences to discuss ideas and draw up details of the preparations needed to ensure success in the first encounter with the Americans. It was, however, decided that the fighters would only be scrambled to engage intruding aeroplanes if they crossed the 20th parallel at Thanh Hoa. This did not happen until 2 April 1965. Following the start of the

The first MiG-17 'Fresco-As' of the 921st FR are seen here shortly after their arrival at Noi Bai air base from China on 6 August 1964 (VPAF Museum, Hanoi)

On 6 August 1964, the VPAF's first two pairs of MiG-17A fighters were placed on standby. One of the aircraft was flown by Lam Van Lich, seen here shortly before receiving the first order to scramble. Both Lich and his flight leader Pham Ngoc Lan would claim aerial victories over American aircraft in 1965-66 (via István Tóperczér)





The first victory credited to VPAF MiG-17s came on 3 April 1965, when Pham Ngoc Lan and Phan Van Tuc attacked two F-8 Crusaders from VF-211 over Thanh Hoa Province. US Navy records indicate that the F-8E that was claimed to have been shot down by the MiGs was nursed by its pilot, Lt Cdr Spence Thomas, south to Da Nang airfield. It was repaired here and then returned to service with the unit on board the carrier *Hancock* (Cartography by Peter Barna)

Phung The Tai, again briefed us on the objectives and ordered a class one alert. At 0940 hrs the VPAF command post and visual observation posts detected enemy aircraft heading for the Ham Rong, Tao and Do Len bridges along Route No 1.

‘With a deceptive manoeuvre in mind, at 0947 hrs the supporting flight was launched from Noi Bai. As the leader of the first attack flight, I took off at 0948 hrs and followed a heading of 210 degrees towards the province of Thanh Hoa. Our flight closed to within 45 km of the intruders at 1008 hrs, while the second flight was still over Ninh Binh Province. At 1009 hrs I informed air control that we had a visual contact with the intruders. In response, the order was given to jettison drop tanks and we went into the attack.

‘The American fighter-bombers were still unaware of our fighters as they attacked the Ham Rong bridge in pairs. My wingman and I followed a pair of American fighters. When in range I opened fire with my guns. The F-8 in front of me exploded in a ball of fire and crashed. I was later credited with the first American fighter-bomber to be shot down by a

American operations *Flaming Dart I-II* (7-24 February) and *Rolling Thunder* (commencing on 2 March), the VPAF supreme command decided the ‘Swallows’ would go into action. At 0500 hrs on the 3rd, 921st FR pilots Pham Ngoc Lan (in MiG-17 2310), Phan Van Tuc (2118), Ho Van Quy (2312) and Tran Minh Phuong (2318) were on standby, while Tran Hanh (2316) and Pham Giay (2416) were in reserve. Pham Ngoc Lan remembered that the weather over Noi Bai that morning was foggy;

‘Visibility over the base was four to five kilometres, with six-tenths cloud and a cloud base at 300 m. Over the anticipated battle area there was five- to six-tenths cloud, with the cloud base at 700 m and visibility of 10 km. At 0700 hrs the radar operators reported a group of aircraft intruding into North Vietnamese airspace on a reconnaissance mission. They then left, and the command expected a large formation attack on the bridge at Ham Rong. VPAF CO, Col Gen

North Vietnamese fighter pilot. At 1015 hrs my wingman, Phan Van Tuc, reported an American fighter to his right. Immediately I gave the order for him to attack, while I acted as his wingman. He managed to close in on the American and fired his cannon. The F-8 crashed.

‘Ho Van Quy and Tran Minh Phuong were also pursuing another pair of intruders. Quy opened fire, although the Americans were out of range and managed to escape. But the battle between the MiG-17s and the F-8s in the Ham Rong area was still far from over. At 1017 hrs Tuc, Quy and Phuong were ordered to land, and they recovered to their home base. In the meantime, although I was close to home, I was running out of fuel and the ground control command post ordered me to eject. I thought there was still a chance to save the aircraft, which was very valuable to the VPAF and able to fight many more battles. I found a long sandy strip on the bank of the River Duong and made a successful landing there. I wasn’t injured and my MiG was later recovered and repaired. It was able to fly again.’

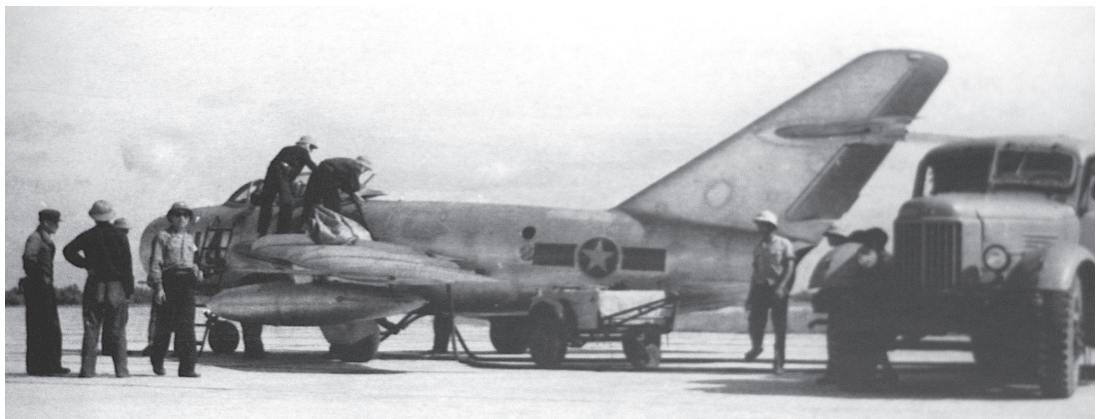
When the gun camera film was analysed, the blazing F-8s were perfectly visible. Pham Ngoc Lan and Phan Van Tuc were each credited with their first victories. US sources, however, stated that only one F-8E, from VF-211, had been damaged by the MiGs. The A-4C and F-100 lost that day had been shot down by ground defences. These official sources insist that all the F-8 Crusaders flying from USS *Hancock* (CVA-19) had recovered from the encounter, and that Lt Cdr Spence Thomas’ aircraft had been so badly damaged that he had been forced to land at Da Nang, in South Vietnam. Nevertheless, this first victory continues to be celebrated. Ever since then, 3 April has been designated VPAF Day.

That evening the 921st FR’s senior officers met to evaluate the day’s achievements, and to plan future encounters. They felt that the pilots, and their unit, had been well prepared, and that this had been the main reason for the success. It was also considered that because the Americans had failed in their objective of destroying the Ham Rong Bridge, they would return with a new plan of attack. Even so, it also seemed likely that the enemy would not have enough time for a major change of tactics.



The 921st FR’s Pham Ngoc Lan and Phan Van Tuc fought in the first Vietnamese-US dogfight of the air war on 3 April 1965, when they intercepted two F-8 Crusaders over Ham Rong Bridge (*Embassy of Vietnam in Hungary*)

Groundcrew prepare a 921st FR MiG-17A on 4 April 1965. The engine starter can be seen between the fighter’s left wing and fuselage (*via István Tópercz*)





Tran Hanh was a MiG-17 flight leader when on 4 April 1965 he shot down a 354th TFS/355th TFW F-105D Thunderchief close to Ham Rong Bridge. The jet's pilot, Maj F E Bennett, was killed (VPAF Museum, Hanoi)

Le Minh Huan also shot down an F-105D (the 354th TFS/355th TFW Thunderchief flown by Capt J A Magnusson, who perished) during the dogfight over Ham Rong Bridge on 4 April, but he was killed in the same combat. It is possible that Huan fell victim to 'friendly fire' or to F-100D pilot Capt Don Kilgus of the 2nd Air Division's 416th Tactical Fighter Squadron, who received credit for a probable victory. Huan was one of three VPAF pilots to be shot down and killed defending Ham Rong Bridge, although Kilgus was the only USAF pilot to make a claim (*via István Tópercz*)



If, therefore, the defenders were able to choose the right time, another surprise interception might be possible. It was also decided that the ground defences would oppose the Americans' initial bombing runs on the Ham Rong Bridge, and that any attack by defending fighters would come later. The plan, therefore, was for a decoy flight to take off first and to fly west of the target area at an altitude of 7000-8000 m. The attack flight would follow on a southwesterly heading at a lower altitude, before climbing above the enemy aircraft and gaining a height advantage.

The weather was still poor on the morning of 4 April, with a thick layer of dry mist rising up to between 4000 and 5000 m. The Americans made several reconnaissance flights over Thanh Hoa in preparation for attacks on the Ham Rong Bridge and the Thanh Hoa power station.

The primary VPAF attack flight comprised Tran Hanh, Pham Giay, Le Minh Huan and Tran Nguyen Nam. They were airborne at 0824 hrs and flew to a holding area. After circling for some time without encountering the enemy, they returned to Noi Bai. At 1020 hrs another flight took off, Le Trong Long, Phan Van Tuc, Ho Van Quy and Tran Minh Phuong climbing to 8000 m and patrolling over Vu Ban and Phu Ly, in Nam Ha Province, to attract the attackers' attention. Ho Van Quy later recalled that when the primary attack flight had taken off the weather was very cloudy, with plenty of mist. He reported;

'They received orders from the ground control command post to descend to low altitude and head east. They were then ordered to make a sharp heading change to the southeast. At 1030 hrs Tran Hanh reported visual contact with the Americans. He had spotted a group of four F-105Ds that had just started dropping their bombs. He ordered his wingman, Pham Giay, to cover him in the attack. From a distance of 400 m Hanh opened up with all three guns, downing one of the Thunderchiefs, which fell in flames into the sea. The Americans turned in to attack, splitting into two groups.'

In the ensuing engagement, Tran Hanh and Pham Giay stayed south of the Ham Rong Bridge while Le Minh Huan and Tran Nguyen Nam headed to the northern side of it. Supported by Nam, Huan shot down a second F-105D. However, thanks to the numerical superiority of the USAF, Pham Giay, Le Minh Huan and Tran Nguyen Nam were all shot down and killed. Tran Hanh was only able to escape his pursuers by hard manoeuvring, during which he lost contact with his GCI. Low on fuel, he crash-landed his MiG-17 (2618) in Ke Tam Valley, Nghe An Province, and later returned to his unit.

The VPAF pilots had not enjoyed the element of surprise in their second engagement as they had done the previous day. Nevertheless, these two encounters had reflected well on them. The VPAF might have been a novice force, and less well equipped than the enemy, but it had acquitted itself well in combat. The USAF duly confirmed the loss of two F-105Ds (59-1754 and 59-1764) on 4 April. Furthermore, its records indicate that no aerial victory claims were made by any of the returning Thunderchief pilots. Indeed, the only kill was claimed by F-100D pilot Capt Don Kilgus of the 2nd Air Division's 416th Tactical Fighter Squadron (TFS), who received credit for a probable victory. It is possible that the VPAF pilots had fallen victim to 'friendly fire'.

On 5 April defence minister Giap and chief of staff Van Tien Dung were briefed about the previous two days' combats when they visited the 921st FR. Despite the victory claims, five MiG-17s and three pilots had been lost. The 921st FR was determined to learn from these early actions through the development of improved tactics and the implementation of better training. Indeed, over the months and years to come the VPAF continuously analysed enemy tactics using data from actual aerial combat or information acquired during the interrogation of captured American pilots.

From these initial encounters, it was clear to the communist pilots involved that their American counterparts avoided turning with the agile MiG-17s and concentrated instead on vertical flight. Their formations entered the combat area in pairs of aircraft that were well spaced. This required less concentration to maintain formation and enabled pilots to pay more attention to avoiding MiGs sneaking up on them. When facing a lone MiG they attacked it by working together. When meeting a pair of MiGs, the US pilots concentrated on the wingman until they succeeded in shooting him down, or until they had forced the element to break off combat. On encountering a larger formation, the US pilots separated and engaged the MiGs in pairs.

Between April and June 1965, American formations attacked many targets in North Vietnam. They focused on key transport intersections southwest and northeast of Hanoi, as well as other targets at Viet Tri, Vinh Yen, Pha Lai and Bac Giang. Armed reconnaissance missions concentrated on airfields and targets north of the 20th Parallel.

Early on 4 June 1965 they attacked Highway 15 at Quan Hoa. At 0555 hrs a 921st FR MiG-17 flight, comprising Lam Van Lich, Nguyen Nhat Chieu, Ho Van Quy and Tran Minh Phuong, took off from Noi Bai and headed for Nho Quan. At 0611 hrs Lam Van Lich spotted enemy aircraft eight kilometres ahead of the formation. He made two complete circles in pursuit of the USAF jets, and although he fired his guns, he failed to hit anything. Two minutes later, Ho Van Quy sighted two enemy aircraft heading for the MiGs. Turning into the jets, his first burst of fire missed but his second hit an F-4 Phantom II that reportedly crashed 15 km east of Tho Xuan. The MiG-17s returned to Noi Bai and landed safely. USAF sources did not confirm the loss of an aeroplane, however.

A bigger battle with American aircraft developed on 17 June when four MiG-17s, flown by Lam Van Lich, Cao Thanh Tinh, Le Trong Long and Nguyen Nhat Chieu, engaged 20 Phantom IIs, Skyhawks and A-1 Skyraiders from USS *Midway* (CVA-41) over Nho Quan. When Lam Van Lich spotted an F-4B six kilometres away, he ordered his flight to turn towards them. During the two-minute battle that ensued, Lich and Long each claimed a Phantom II shot down. Meanwhile, two of the F-4Bs (from VF-21) launched AIM-7 missiles that hit two of the MiGs. Cao Thanh Tinh and Nguyen Nhat Chieu ejected and landed safely. Lam Van Lich was able to land safely at Noi Bai, but Le Trong Long had flown into



During the dogfight on 17 June 1965 over Nho Quan, future ace Nguyen Nhat Chieu (middle) was shot down by a Sparrow missile fired from a VF-21 F-4B flown by Lt Jack Batson and RIO Lt Cdr Robert Doremus. He was able to eject from his MiG-17 and land safely (VPAF Museum, Tan Son Nhut)

RIGHT A flight of 921st FR MiG-17s taxis out for takeoff during the summer of 1965. Three of the four aircraft display coloured fin tips to identify them to VPAF forward ground observers (Vietnamese News Agency)



On 20 September 1965, a 921st FR MiG-17 flight attacked US Navy F-4Bs – possibly from Carrier Air Wing 7 – and, according to VPAF records, one of the Phantom IIs was shot down over Nha Ham, in Ha Bac Province, by Nguyen Nhat Chieu for the first of his six victories. Here, he celebrates this success in front of the MiG-17 that he used to shoot down the Phantom II – his claim cannot be corroborated by US Navy loss records, however. Born in 1934, Chieu received instruction on the MiG-17 in China between 1959 and 1964 and trained on the MiG-21 in Vietnam in 1966. He commenced his service with the 921st FR in 1965, and in 1972 joined the 927th FR (VPAF Museum, Hanoi)

a mountain during the low-altitude dogfight and was killed. US Navy records indicate that no aircraft were lost on this date.

Three days later, two MiG-17 pilots engaged six A-1Hs from VA-25 (embarked on *Midway*) that were supporting a rescue mission for a downed USAF pilot over Mai Chau, in the Hoa Binh Province. The VPAF flight leader Mai Duc Toai fired seven times before he claimed to have hit his target. His wingman Nguyen Van Lai also reported a kill, but a low-altitude manoeuvre in turn saw him fly into a mountain. Again, no Skyraiders were reported as lost by the US Navy on 20 June, VA-25 turning the tables by claiming credit for the MiG-17 that had crashed.

On 10 July, two MiG-17s were claimed (with AIM-9 Sidewinder AAMs) by two F-4C crews from the 45th TFS/15th TFW, Phan Thanh Nha and Nguyen Cuong losing their lives.

From the summer of 1965 American forces concentrated on the destruction of the road and rail networks in Lang Son, Lao Cai and Haiphong provinces near Hanoi and the No 4 Military District. After a two-month lull starting in September, VPAF aircraft were again committed to the fighting over North Vietnam following a decision by the chief of staff and the general command. When Route No 1 was attacked between Lang Son and Hanoi on 20 September, a flight of four MiG-17F 'Fresco-Cs' was scrambled from Noi Bai. Pham Ngoc Lan, who led Nguyen Nhat Chieu, Tran Van Tri and Nguyen Ngoc Do into combat, later recalled;

'We climbed away and spotted the American aircraft flying over Yen Tu at an altitude of 3000 m. We were ordered to jettison our external fuel tanks, accelerate and attack. We immediately turned right and attacked a flight of four US Navy F-4s. Apparently, the Phantom II pilots hadn't noticed our MiGs until it was too late. Two pulled up hard while the other pair broke to starboard. Not intending to get into a vertical fight, we stayed with the turning Phantom IIs. One of them was attempting to disappear into cloud.

'Its flightpath was so predictable that my wingman could take a short cut and close in on him. Popping out of the cloud, the Phantom II headed for the sea, with Chieu on his tail. He opened fire when he was within 400 m. Trailing black smoke, the F-4 began a slow descent. It tried to escape but received another burst from the MiG's triple cannon pack. The Phantom II crashed into a mountain near Nha Ham, in Ha Bac Province. Our flight returned home safely.'

It was Nguyen Nhat Chieu's first aerial victory in a war that would see him become an acclaimed MiG-21 ace. During the dogfight two other MiG-17 pairs, comprising Bui Dinh Kinh and Dao Cong Xuong, and Ho Van Quy and Nguyen Van Bien, provided close support for Pham Ngoc



Lan's flight. Unlike VPAF sources, the US Navy did not list any F-4s lost on 20 September.

Although the 921st FR had succeeded in shooting down enemy aircraft, it had also sustained serious losses. In the third quarter of 1965 VPAF HQ issued an order intended to restrict the number of aerial combats the unit could participate in. It had analysed the engagements fought so far and found numerous tactical deficiencies in respect to the way the regiment had performed in combat. For example, instead of attacking the heavily laden strike aircraft, Vietnamese pilots were regularly clashing with the escorting fighters. Furthermore, some flight leaders had 'acted in confusion' or, because of their initial successes, in a way that 'showed their contempt' for their American opponents.

SECOND MiG REGIMENT

In May 1965, Vice Prime Minister Le Thanh Nghi ordered the MoD to build or expand airfields at Hoa Lac, Yen Bai, Tho Xuan and Kep. At the same time Gia Lam and Kien An were rebuilt, with work completed by the end of 1965. The airfield at Kep had to be ready by September to accommodate a newly formed fighter regiment. Soon there were 4000 people working on the airfield, laying up to 700 cubic metres of concrete per day and removing a total of 500,000 cubic metres of earth. The work was planned to take eight months to complete, but the MoD considered this too long and ordered the surrounding hills to be blown up in order to expedite the building of the airfield – 250 tons of explosives were duly detonated on 8 July. Despite the subsequent removal of the surrounding hills, landing at Kep still represented a challenge for pilots.

The airfield's 2200 m long and 40 m wide runway was first used by a Li-2 transport of the 919th Air Transport Regiment (ATR), after which Lt Col Mai Duc Toai had the task of making the first MiG-17 landing. Initially, he overflew the airfield with external fuel tanks fitted to his jet, before jettisoning the tanks and landing. Taking off from Kep a short while later, Toai then made another landing with partially filled external fuel tanks. The tests were judged to be successful, after which the 923rd FR commenced preparing its pilots for operations from Kep. Training included landing on Noi Bai's longer runway, onto which the dimensions of Kep's runway had been clearly marked. At first only one pilot was able to land within

The cockpit of a Soviet-built MiG-17A showing the ASP-3N Sneg (Snow) radar gunsight in the middle of the panel above the control column. Note the three switches on the upper left side of the cockpit that were used to arm the NR-23 and N-37D cannon. A push of at least three seconds on any of these buttons charged the guns. Any unfired ammunition could be removed from the gun barrels upon returning to base (*Ernö Nagy*)





The runway at Kep airfield was 2200 m long and 40 m wide, and its suitability for MiG-17 operations was evaluated by Mai Duc Toai (seen here) upon its completion in September 1965. Toai would shoot down F-105D 62-4294 of the 354th TFS/355th TFW south of Gia Lam airfield on 25 April 1967, its pilot, 1Lt R L Weskamp, being killed (*Vietnamese News Agency*)

in the region. Lt Col Nguyen Phuc Trach was appointed its CO.

Kep's runway was eventually lengthened, but due to the lack of aircraft shelters and parking areas only four MiG-17s were initially stationed there, the remainder being held at Noi Bai. This meant that the 923rd FR was spread over two bases nearly 100 km apart. After setting up the unit's organisation, all ranks began their training, determined to put two flights into combat in all weathers. Some pilots such as Mai Duc Toai, Tran Huyen and Nguyen Khac Loc were trained to become command officers and instructors. Despite bad weather towards the end of the year, the regiment was still able to fly ten to 15 training sorties every day, totalling 200 to 240 flying hours per month. Two months after its formation, the 923rd sent eight pilots and their MiG-17As to China for further training, while eight others returned combat-ready. The unit's fighter pilot complement now included Le Quang Trung, Vo Van Man, Nguyen Khac Loc, Nguyen The Hon, Tran Van Triem, Duong Trung Tan, Ngo Doan Nhung and Ngo Duc Mai.

The unit's first encounter with US aircraft came on 6 October when the US Navy F-4B crew of Lt Cdr Daniel MacIntyre and Lt(jg) Alan Johnson of VF-51, flying from USS *Coral Sea* (CVA-43), claimed to have downed a MiG-17 with a Sparrow missile. The aircraft of future ranking ace Nguyen Van Bay was indeed damaged, but he landed safely. He had been one of four MiG-17 pilots (Tran Huyen, Le Trong Huyen, Nguyen Van Bay and Luu Huy Chao) from the 923rd that had been ordered to intercept a US Navy formation attacking a target in the Kep area. The flight leader, Tran Huyen, spotted the American aircraft first, and moments later Nguyen Van Bay also saw two enemy aircraft ahead. Bay subsequently recalled;

'Increasing my speed and pulling hard into a turn in an attempt to get behind the US Navy jets, I spotted an F-4 on my tail launching an AIM-7 missile at me. As I turned even harder, the missile exploded off to my right side, flipping my aircraft upside down. I was stunned for a moment, but was able to recover. I was still flying at 700-800 km/h, but a piece of shrapnel had pierced my canopy and the cockpit was losing pressure. I put my hand over the hole but felt it being sucked out. "Oh, it's Bernoulli's Law", I thought to myself. During my training in China I had memorised all the laws of aerodynamics that my instructors had written down during our lessons in the classroom. However, I could not comprehend at the time how these laws, and the mathematical formulae explaining them, related practically to my

the restricted distance, qualifying him to make the transfer to Kep.

The 923rd had two fighter squadrons, each equipped with 30 aircraft, including MiG-17As and MiG-17Fs. In addition, the regiment also had four MiG-15UTI trainers. During this period Kep was also used by a helicopter unit of the 919th ATR. The 923rd was officially inaugurated on 7 September and given the task of defending the skies northeast of Hanoi in cooperation with the 921st FR and ADF units



flying once in the air. The force being exerted on my hand by the greater air pressure outside the cockpit was a graphic demonstration of Bernoulli's Law in action, as described by my instructor.

'At that moment I saw an F-4 flying overhead. I wanted to chase it but I quickly discovered that the fuselage of my MiG had been badly holed by shrapnel. The aircraft started to shudder and was clearly unstable, so I requested permission to land at Noi Bai.'

VPAF records do not mention the encounter of 6 October, stating that Bay's engagement with the F-4Bs actually took place the following day.

Eight days later, two F-105Ds from the 36th TFS/6441st TFW were downed east of Hanoi. One jet fell to AAA, while the second aircraft was possibly brought down by a MiG-17 according to USAF sources. No VPAF pilot actually made a claim on this date, however. The last confirmed North Vietnamese aerial victory of 1965 came on 6 November, when a 921st FR MiG-17 flight comprising Tran Hanh, Ngo Doan Nhung, Pham Ngoc Lan and Tran Minh Phuong bounced a USAF CH-3C search and rescue helicopter over Hoa Binh.

Between late 1965 and early 1966 the 921st was re-equipped with new MiG-21PF (NATO reporting name 'Fishbed-D') fighters supplied by the Soviet Union. The MiG-17As were gradually replaced by the newer and more capable MiG-17Fs, and the 921st was also equipped with 28 radar-equipped MiG-17PF 'Fresco-Ds' to serve as nightfighters. Based on a MoD decision, the 921st FR was to be equipped with a mixture of MiG-17s and MiG-21s, and it was consequently re-organised into two fighter squadrons and a unit of nightfighters. The 923rd FR also received 26 MiG-17Fs.

From 3 April to the end of December 1965, VPAF aircraft had flown 156 sorties. The aerial combats fought during this period had shown that the subsonic MiG-17s could be effective against the superior American F-105 and F-4 fighters. At low altitude the Thunderchief was not as manoeuvrable, giving the MiG-17 a considerable advantage, especially during bombing runs when pilots were concentrating on hitting their targets. The F-4s were armed with guided missiles only, which required an optimal launch range. This handed the VPAF pilots with their manoeuvrable cannon-armed fighters a considerable advantage in dogfights. All in all, the MiG-17s had demonstrated good flying characteristics and tactical fighting capabilities against the supersonic American fighter aircraft at low altitude, in dogfights and during combat in the horizontal plane.

Another boost for the defenders came at the end of the year with the completion of airfield reconstruction so that in addition to Noi Bai and Kep, Kien An, Gia Lam, Hoa Lac and Yen Bai were now ready to operate fighters.

The 923rd FR's MiG-17 flightline at Kep in September 1965, shortly after the regiment had moved its two squadrons to the base. All VPAF MiGs displayed four-digit tactical 'Bort' numbers, applied in red to the nose (*Museum of the 371st AD*)



CHAPTER TWO

THE AIR WAR INTENSIFIES

MiG-17 pilots and technicians of the 923rd FR listen intently as one of their colleagues reads passages from a newspaper at Kep air base. The propagandistic rhetoric on the blackboard at left reads 'Vietnam People's Air Force is determined to shoot down on the spot many US aircraft', this sentiment being inspired by a recent call to arms by President Ho Chi Minh (*Vietnamese News Agency*)

After a 37-day pause, the President Lyndon B Johnson administration ordered the aerial bombardment of North Vietnam to be resumed in February 1966. The North Vietnamese government responded by widening the VPAF's role to include the defence of key parts of the national transportation infrastructure and attacks on enemy installations on land and vessels at sea.

The new MiG-17F and MiG-17PF fighters that were now being issued to frontline units were armed with three cannon (one 37 mm N-37D and two 23 mm NR-23s) and fitted with Klimov VK-1F afterburning engines. They also had greater manoeuvrability and acceleration than their predecessors and were generally more capable in dogfights with their American opponents. Some of the 921st FR's pilots also received conversion training onto the MiG-17PF nightfighter, after which they were assigned to a new nightfighter squadron. Its first CO was Mai Duc Toai.

From the late afternoon of 3 February, American aircraft were active south and west of Hanoi. At 1900 hrs attacks were mounted on roads in the Suoi Rut and Hoa Binh areas. That evening, Lam Van Lich was on combat alert duty when he was scrambled. Pioneering the VPAF's new nightfighting mission single-handedly, he took off alone in his MiG-17PF. As the regimental command directed him towards Hoa Binh, he was instructed to climb to an altitude of 4500 m and turn left to follow the first

enemy group. At a point 25 km northwest of Suoi Rut more enemy aircraft were detected turning towards Mai Chau.

Hoping to avoid detection until the very last minute, Lich only turned his radar on when he was ten kilometres from Mai Chau. He immediately detected a target directly ahead and calmly fired a burst from his cannon before breaking hard right. His shells hit an A-1H Skyraider. Lich then detected another aircraft and fired a long burst, hitting a second Skyraider. After this brief but fruitful engagement, his MiG-17PF was directed away from the combat area on a heading for Noi Bai at a height of 1000 m. The outcome of Lam Van Lich's evening's work was that he was credited with achieving the first VPAF night kills. US sources did not, however, confirm the losses.

The 923rd FR was in combat for the first time in 1966 on 4 March when Pham Thanh Chung, Ngo Duc Mai, Tran Minh Phuong and Nguyen The Hon engaged enemy aircraft during a late afternoon patrol of the Yen Bai-Phu Tho area. Chung opened fire but was unable to score a hit, while Mai targeted a Phantom II, but it flew on unscathed. Firing again, he reported seeing the F-4 'shudder' and then explode. The MiG pilots then broke off the battle and returned to base, and as they were preparing to land they discovered that they had been followed. Mai turned round to engage the enemy aircraft, at which point they broke off the pursuit and fled. With Mai now running low on fuel, he had to make an emergency landing, which he accomplished at 1620 hrs. Again, US sources did not confirm the loss of a Phantom II on this date.

On the morning of 17 April a USAF C-47 transport aircraft flew into Vietnamese airspace and began circling over the Hoi Xuan area at an altitude of 3000 m. Four 923rd FR MiG-17s flown by Ho Van Quy, Luu Huy Chao, Nguyen Van Bien and Tran Van Triem were ordered to intercept it. At 1301 hrs the MiG pilots took a heading of 230 degrees at an altitude of 3000 m. After 21 minutes they sighted the target to their right some 100 m above them. Quy turned left to attack but his cannon shells missed the target. Luu Huy Chao closed from the right and fired a burst of 85 rounds up into the target. The C-47's right engine caught fire and the aircraft eventually broke in two. Bien fired seven more rounds at the wreckage once it had hit the ground. At 1339 hrs the MiG-17s landed safely at Noi Bai. Although credited to Luu Huy Chao by the VPAF as the first of his six aerial victories, there were no C-47s lost that day according to official USAF records.

Based on enemy aerial activity over the previous few days (including two MiG-17s claimed as destroyed by two F-4C crews from the 555th TFS/8th TFW on 23 April, which again lack corroboration by VPAF records), VPAF HQ ordered four MiG-17s to intercept, attacking enemy strike groups approaching from the Binh Gia-Bac Son area on 26 April. At 1431 hrs 923rd FR MiG-17 pilots Ho Van Quy, Luu Huy Chao, Nguyen



Pictured beside a 921st FR MiG-17, Lam Van Lich and Nguyen Van Bay examine gun camera film for the benefit of the photographer after a combat on 3 February 1966 that saw Lich credited with the first VPAF night kill while flying a radar-equipped MiG-17PF. He claimed two A-1H Skyraiders destroyed, although these were not listed in US loss records. Lich and Bay completed their flying training in China, with the latter pilot eventually becoming the top MiG-17 ace (*via István Toperczer*)

RIGHT The first radar-equipped MiG-17PF 'Fresco-Ds' arrived in North Vietnam from the USSR at the end of 1965. The fighter's RP-5 radar operated on the two antenna principle, with one being used for searching for targets and the other for tracking them once detected. This particular example (4623) from the 921st FR was photographed being checked over by locals shortly after its arrival (*Museum of the 371st AD*)



Nguyen Van Bay celebrates his first aerial victory with his groundcrew on 26 April 1966. VPAF records state that he shot down an F-4C over Bac Son-Binh Gia, although there is no such loss noted in USAF records. Born in 1936, Bay trained in Vietnam and China between 1959 and 1964. He started his service with the 921st FR in 1964 and a year later transferred to the 923rd FR (VPAF Museum, Tan Son Nhut)



Van Bay and Tran Van Triem took off from Kep with two 921st FR MiG-21s that were to provide support and cover from a holding area north of Noi Bai at 4000 m. The MiG-17s flew a heading of 360 degrees and climbed to 3500 m. After flying for five kilometres they turned toward Bac Can when their pilots detected F-4s to their left at a distance of 5 km. Luu Huy Chao quickly shot one down while Ho Van Quy provided cover for him. Bay and Triem had gone after the enemy flight leader, the former managing to shoot down one of two Phantom IIs that had attempted to evade the MiG-17s by turning sharply into them.

Breaking off the engagement, the four MiG pilots turned for home. Their return journey was not without incident, however, for Triem had to eject when he was mistakenly shot down by a North Vietnamese ADF unit. The remaining three pilots reached Noi Bai safely. In the post-operation analysis of this mission, it emerged that Luu Huy Chao and Nguyen Van Bay had each shot down an F-4, and that the MiGs had also damaged another

Phantom II. Future seven-victory ace Nguyen Van Bay had claimed his first aerial victory of the war, although US records show no losses as a result of aerial combat on 26 April.

On the afternoon of 29 April, there was another contest involving a MiG-17 flight and USAF aircraft. The 923rd FR command post ordered Nguyen Khac Loc, Luu Huy Chao and Nguyen Van Bay to intercept a gaggle of F-4s and F-105s over Bac Giang. In the ensuing battle, Bay reported shooting down an F-105D, although US records did not confirm his claim. Meanwhile, his comrade Nguyen Khac Loc was forced to eject after his aircraft was struck by an AIM-9 fired by one of the F-4Cs – the 555th TFS/8th TFW actually claimed two MiG-17s destroyed, with the second one being ‘manoeuvred’ into the ground. Although no VPAF pilot claimed an A-1E shot down that same day, the USAF did report the loss of a Skyraider to a MiG-17 east of Na San.

There was another aerial battle fought 24 hours later when four MiG-17s were involved in a dogfight with F-4Cs and F-105s over Nghia Lo. Pham Ngoc Lan had to eject but landed safely, although Tran Tan Duc was killed when his jet was struck by a Sidewinder fired from an F-4C Phantom II from the 555th TFS/8th TFW – only one MiG kill was claimed by the wing.

Another MiG-17 was claimed by an F-4C on 12 May when a crew from the 390th TFS/35th TFW was credited with downing an aeroplane that was in turn attempting to attack an EB-66 Destroyer electronic warfare aircraft. There are no losses in VPAF records for the 12th, however.

During May, the MiG-17 pilots reviewed their dogfighting experiences to date. They had fought mainly at medium altitude, but many VPAF pilots felt they would be more effective if they could bring their American opponents down to lower levels, where they could exploit the MiG-17's superior manoeuvrability and turning capability. There was, however, little time for reflection because the aerial battles resumed in earnest in June with American attacks on Hanoi, Haiphong and other military and

industrial centres. By the autumn, VPAF pilots had been credited with the destruction of 15 enemy aircraft in ten engagements. During this period Le Quang Trung, Nguyen Van Bay, Vo Van Man, Luu Huy Chao and Phan Van Tuc amassed sufficient victory claims to give them ace status.

On 12 June enemy aircraft were detected over Cai Bau Island, the jets descending to low level after crossing the Yen Tu mountains. The 923rd FR command post decided to deploy two MiG-17s to intercept them, with orders to lure the enemy jets down to a low altitude. At 1443 hrs Le Quang Trung and Vo Van Man took off from Kep and headed west on a 90-degree vector at 1000 m. Trung immediately sighted a pair of F-8s ten kilometres east of Luc Nam. More Crusaders were covering a formation of Skyhawks that had just commenced their bombing run on their target, the F-8s circling between Chu and Kep to prevent the MiGs from getting at the A-4s.

After releasing their ordnance, the A-4s headed for the coast at low level to the north of Haiphong. The F-8s, meanwhile, were now at 1500 m in preparation for striking military targets 55 km east of Haiphong. The MiG-17s manoeuvred at low altitude (400-700 m) in pursuit of the A-4s, even though they were outnumbered by their F-8 escort. The Crusader pilots turned hard into the chasing MiG-17s, and Trung in turn manoeuvred from right to left into the closest F-8 in an attempt to retain the initiative. The F-8 leader – Cdr Hal Marr of VF-211, embarked in USS *Hancock* (CV-19) – launched two AIM-9 missiles and shot off several bursts of cannon fire at the MiGs but failed to achieve a hit (he was, nevertheless, credited with a kill by the US Navy). Le Quang Trung did better, claiming an F-8 downed over Ha Bac Province. It was his first aerial victory, although like Marr's kill, the Crusader's loss was not confirmed by official sources.

There was a further battle on the afternoon of 21 June after a strike force of A-4s, escorted by F-8s, had targeted a railway line northeast of Kep. A photo-reconnaissance Crusader from *Hancock* had been shot down by AAA (although its demise was also claimed by the 923rd FR) taking battle damage assessment photographs shortly after the Skyhawks had left, and its four fighter escorts – F-8Es from VF-211 – immediately attempted to locate the downed pilot.

At 1426 hrs 923rd FR command ordered Pham Thanh Chung, Duong Trung Tan, Nguyen Van Bay and Phan Van Tuc to take off from Kep to intercept the ResCAP F-8s. Another MiG pair flown by Le Quang Trung and Vo Van Man was held in reserve. The intercepting pilots sighted two Crusaders circling at an altitude of 600 m as they searched for the downed naval aviator (Lt L C Eastman). Meanwhile, the VPAF command post detected two more F-8s heading for their aerial refuelling area over the Gulf of Tonkin. The MiG-17s engaged the jets at 1437 hrs, Chung succeeding in shooting down the Crusader flown by Lt Cdr Cole Black.

The other F-8 (flown by Lt Gene Chancy) turned back to look for his flight leader. After closing with the MiGs, two newly arrived F-8s turned hard to join the air battle but failed to get into suitable attack positions. Covered by Duong Trung Tan, Chung continued to pursue these F-8s, one of which was already damaged and heading out to sea. Chung was unable to secure further hits. When the pair was ordered to break off the engagement, Tan suddenly felt his aircraft shake hard, then become uncontrollable. It had been hit by an AIM-9 missile fired by the F-8E of Lt Chancy. Tan decided



Phan Van Tuc used the hard-hitting cannon in his MiG-17 to shoot down the VF-211 F-8E of Lt Cdr Cole Black on the afternoon of 21 June 1966. Tuc (1934-67) was trained in China between 1956 and 1964 and began his service with the 921st FR in 1964. After a year he transferred to the 923rd FR. VPAF records credited him with achieving four aerial victories during the war (VPAF Museum, Hanoi)

Phan Van Tuc claimed the destruction of an F-105D over Tam Dao on 29 June 1966, his success being captured on his gun camera film. USAF loss records, however, state that the 333rd TFS/355th TFW Thunderchief of Capt Murphy N Jones was shot down by 85 mm AAA (via István Tópercz)





Nguyen Van Bay (far right) also shot down an F-105D on 29 June 1966, according to VPAF records. Here, he re-lives the battle for the benefit of fellow 923rd FR pilots (via István Tópercz)

to eject and he reached the ground safely. Meanwhile, Bay and Tuc were also engaged with the F-8Es when the break-off order came. On their way back to base, Phan Van Tuc saw an F-8 chasing them. Quickly reversing course, he fired his guns, and claimed that he saw the F-8 starting to burn. At 1445 hrs the three MiG-17s landed safely at their base. Aside from Chancy's victory (and a second guns kill that was initially recorded as a probable), Lt(jg) Phil Vampatella was also credited with downing a MiG with a Sidewinder. According to VPAF records, however, only Tan's jet was downed.

On 29 June the USAF attacked fuel storage depots at Duc Giang (Hanoi) and Thuong Ly (Haiphong), as well as additional targets in the capital. Twenty-four F-105s escorted by 16 F-4s swept in from Moc Chau, hugging the Tam Dao mountains before heading for Duc Giang. The F-4s were ordered to fly a MiGCAP mission over Noi Bai and Kep to suppress the fighters based there. Attempting to oppose the raids, the 923rd FR command post scrambled four MiG-17s, flown by Tran Huyen, Vo Van Man, Nguyen Van Bay and Phan Van Tuc, to intercept the bombers. Taking off from Noi Bai, they turned left on a heading of 270 degrees, at which point they sighted four F-105s. The bombers then dropped their ordnance in order to engage the MiG-17s. Huyen and Man turned inside them and fired a burst at an F-105D, damaging its canopy. The MiG-17s and two Thunderchief pilots attempted to turn inside each other and gain an advantage, Huyen and Man periodically firing at their foes despite the range being too great.

Meanwhile, Bay and Tuc turned left to attack the remaining two F-105s. The Thunderchiefs turned sharply in their efforts to evade the MiGs, Bay singling one of them out and firing two bursts. The F-105 was hit and began to burn. Tuc, who was covering Bay, spotted another Thunderchief directly in front of him and immediately gave chase. He also fired two bursts, from a range of 500 m, hitting the F-105 just before it dived into the clouds. The support command station then informed the four MiG-17 pilots that American aircraft were over Noi Bai, ordering them to land at Gia Lam airfield instead, which they all did. Following this aerial battle over Tam Dao, Nguyen Van Bay and Phan Van Tuc were credited with sharing in the destruction of two Thunderchiefs, although according to USAF records the sole F-105 (from the 333rd TFS/355th TFW) officially listed as missing was downed by North Vietnamese AAA. F-105D pilot Maj Fred L Tracy of the 421st TFS/388th TFW was in turn credited with shooting down a MiG-17 with his jet's M61A1 20 mm cannon, although the 923rd FR suffered no casualties.

REVIEW OF TACTICS

There was a further review of combat tactics in July 1966. This confirmed the effectiveness of fighting at low altitude and engaging the enemy in dogfights, which had in turn helped the 923rd FR's MiG-17 pilots shoot down six American aircraft during the previous month.

The regiment's Phan Van Na and Nguyen The Hon claimed an A-4 and an F-8 destroyed on 13 July over An Thi (which did not tally up with any American losses for this date), whilst the US Navy also credited the crew of an F-4B from VF-161, embarked in USS *Constellation* (CVA-64), with the destruction of the MiG-17 flown by Tran Van Tiem. The following day, again in the vicinity of An Thi, Ngo Duc Mai hit the F-8E of Cdr Dick Bellinger (CO of VF-162, embarked in USS *Oriskany* (CVA-34)) hard with cannon fire. The Crusader eventually ran out of fuel near Da Nang and Bellinger was forced to eject.

On 19 July 12 F-105s armed with rockets and guns were detected over Tam Dao at between 600-1500 m heading north of Hanoi to Noi Bai. Their lack of bombs implied that the enemy aircraft were on a MiG-hunting mission. The command post ordered Nguyen Van Bien and Vo Van Man to take off at 1450 hrs and fly a holding pattern over Noi Bai. The VPAF hoped to keep the enemy aircraft down at low level and engage them close to the airfield, thus allowing both pilots to take advantage of the visual ground control posts in the area.

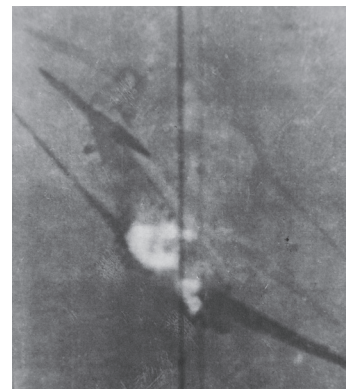
The MiGs soon encountered two pairs of F-105s stepped 1500 m apart, the VPAF pilots flying directly over Noi Bai to intercept them. They were ordered to attack, but not to open fire unless they had closed to at least 400-600 m. The Vietnamese pilots increased their speed, and a steep climb brought them in behind an F-105. Bien opened fire from 600 m but the Thunderchief pilot had seen him and was able to avoid his rounds. Then it was the American's turn to get behind the MiG. He fired numerous cannon bursts but failed to shoot it down. A furious dogfight developed when eight other F-105s piled in. Attempting to lure their pursuers within range of AAA batteries, the MiGs rushed back to Noi Bai. East of the airfield, Man abruptly reversed course to get behind one of his pursuers. After two bursts, one of the enemy aircraft (F-105D 59-1755) crashed, giving Vo Van Man his first aerial victory. The pilot of the Thunderchief, 1Lt Stephen Diamond of the 354th TFS/355th TFW, was killed.

Despite the American pilots' determination to shoot down MiGs, their efforts were frustrated by heavy AAA fire. Two minutes later, another Thunderchief (F-105D 60-5382, again from the 354th TFS/355th TFW) was credited to Nguyen Van Bien, while a third was hit by flak and exploded over Tuyen Quang. The USAF only acknowledged the loss of two Thunderchiefs, with Bien's victim reportedly being hit by AAA and eventually crashing in Thailand. The two MiG-17s landed safely at Gia Lam, where Vo Van Man discovered that despite his vigorous evasive manoeuvres during the dogfight, the wings of his jet had been peppered with holes punched by cannon shells from an F-105. As this battle was fought over Noi Bai, the main ground control station and the supporting visual control stations were able to provide timely information to the MiG-17 pilots,



On 19 July 1966, future 923rd FR ace Vo Van Man claimed his first aerial victory when he shot down the 354th TFS/355th TFW F-105D of 1Lt Stephen Diamond over Vinh Phu. 1Lt Vo Van Man (1939-67) was trained in China between 1960 and 1964. He began his service with the 921st FR in 1964 and after a year he transferred to the 923rd FR. VPAF records credit him with achieving five aerial victories during the war (VPAF Museum, Hanoi)

On 29 July 1966, Vo Van Man shot down a USAF RC-47D of the 606th Air Commando Squadron/634th Combat Support Group that was flying an electronic and photographic reconnaissance mission over Hoa Binh. Man's gun camera film clearly shows the RC-47D being hit by cannon shells fired from his MiG-17F. The RC-47D pilots and six crewmen were listed as killed in action (via István Tópercz)





This MiG-17F, 'Red 2047', was used by Vo Van Man to shoot down the USAF RC-47D on 29 July 1966 (*István Tóperczer*)

After the dogfights of July 1966, MiG-17 pilots Nguyen Hong Thanh, Mai Duc Toai, Tran Van Triem, Luu Huy Chao, Ngo Duc Mai, Nguyen Van Bien, Le Quang Trung and Ngo Duy Tuan pose for a group photo at Kep. These aviators successfully fought F-4s, F-105s and F-8s during a month of intense action, with two MiG-17s being claimed destroyed by USAF and US Navy Phantom II units in return (VPAF Museum, Tan Son Nhut)



giving them instructions on when to manoeuvre, the best choice of targets and when to counterattack.

The next victory credited to the 923rd FR came on 29 July, when two aircraft from the unit were scrambled to intercept a piston-engined RC-47D aircraft from the 606th Air Commando Squadron/634th Combat Support Group that was flying a reconnaissance mission over the Pathet Lao stronghold of Sam Neua, in Laos. When the aeroplane was detected straying across the border into North Vietnam, Tran

Huyen and Vo Van Man were ordered to intercept it. Directed to fly on a heading of 240 degrees at an altitude of 3000 m, Huyen sighted the converted transport aircraft some 20 km ahead just two minutes after takeoff. The MiG flight reduced speed as it approached the target, Huyen then firing two bursts from his cannon. The RC-47D's left wing caught fire, but because of the massive speed differential the MiG-17s swept past their target. Quickly turning back around for another pass, they fired again from a range of 1000 m and this time saw the RC-47 burst into flames. The aeroplane's pilots and six crew were listed as killed in the action.

The 923rd FR remained active in August, with two of its MiG-17 pilots, Luu Huy Chao and Le Quang Trung, being able to add further victories to their tallies during the month's battles. On the 12th, enemy aircraft were detected by radar 25 km east of Phu Yen. At 1649 hrs Phan Van Tuc and Luu Huy Chao took off from Gia Lam and followed the Red River until they engaged the USAF aircraft southeast of Nghia Lo. At 1657 hrs a pair of supporting MiG-21s took off from Noi Bai and headed for Son Duong. The intruders were identified as F-105Ds (from the 355th TFW) that were on their way to strike fuel storage tanks in the Thai Nguyen area. The command post ordered Tuc and Chao to intercept, the former spotting four F-105s 15 km ahead at an altitude of 500-1000m. Quickly closing in on the Thunderchiefs, Chao shot down one of them before breaking off and making a low-level escape. Two F-105Ds from the 333rd TFS were indeed

lost on this raid, although the USAF claimed that both jets fell to AAA.

Thunderchiefs were engaged again on the 17th when two groups of bombers were sent in against targets in North Vietnam from two different directions. The first appeared over Phu Lang Thuong-Dap Cau to attack the Duong Bridge, while the second headed north of Noi Bai. VPAF HQ Command ordered the 923rd FR to simultaneously defend both the

airfield and the bridge. The MiG-17 pilots duly put into action a plan they had previously devised whereby two flights of jets would take off from different airfields and converge over the same area. Accordingly, Le Quang Trung and Ngo Duc Mai took off from Noi Bai, and Nguyen Van Bien and Phan Van Tuc were scrambled from Gia Lam to defend Hanoi and targets in the area.

After takeoff, all four MiG-17s flew to Bac Ninh to attack the enemy aircraft heading for Duong Bridge. The appearance of four MiGs prevented the F-105F crews from concentrating on their anti-SAM *Iron Hand* mission and forced them to engage the VPAF jets at low level. The outcome of the ensuing battle was that Le Quang Trung shot down an F-105F, after which the four MiG pilots were able to reach home safely. According to US sources, F-105F 63-8308 of the 354th TFS/355th TFW was shot down by AAA 20 km north of Van Yen, its two-man crew (Majs J W Brand and D M Singer) being killed.



Le Quang Trung (left) and Ngo Duc Mai (right) scrambled from Noi Bai on 17 August 1966 and engaged F-105s. Le Quang Trung claimed to have shot down the 354th TFS/355th TFW F-105F of Majs J W Brand and D M Singer, although the USAF stated it was lost to AAA (via István Tópercz)

SIDESTEPPIING THE SIDEWINDERS

There were many aerial engagements fought between the VPAF and USAF and US Navy fighters in the second half of 1966, by which time the MiG-17 pilots had developed evasive manoeuvres against the air-to-air missiles (AAMs) increasingly being used by the Americans. On one occasion, in September, a MiG-17 pilot was returning to base when two F-4s succeeded in getting within range of the fighter to launch their missiles. Firing a number of AIM-7 Sparrows from between 1500 and 2000 m, the pursuing crews failed in their attempt to down the unnamed VPAF pilot when he performed a series of well-rehearsed evasive manoeuvres that prevented the AAMs from finding their mark.

Such manoeuvres were not easy to master, however. In the single-seat MiG-17, the only way to spot a Sidewinder or Sparrow missile approaching from behind was by flying a zigzag course – flame from the missile was also clearly visible when it was launched. The basic defensive manoeuvre employed by a Vietnamese pilot involved pulling his MiG-17 into a steep 3-4g 70-degree banking turn towards the incoming missile at a speed of 700-900 km/h. In most cases this was enough to break the missile's target lock. However, if the pilot was flying at a height in excess of 800 m, and the 'basic turn' was not enough to shake off a heat-seeking Sidewinder (far more manoeuvrable than the radar-guided Sparrow), he was forced to begin a more elaborate manoeuvre.

By increasing the angle of bank, he would commence a gentle dive without having to push forward on the control column. Such a manoeuvre meant that he could constantly keep changing the movement of the aircraft in different planes. In its early stages, this manoeuvre was similar to a spiral, with the pilot performing a slow, descending, roll. The simultaneous movement of the aircraft in both the vertical and horizontal planes was usually sufficient to break the target lock of the missile's guidance head.



Nguyen Van Bay (sitting, at left) and his comrades sing popular military songs between sorties at Kep during the summer of 1966. Combat-ready, camouflaged, MiG-17s are parked behind the group (Museum of the 371st AD)

Nguyen Van Bay (right) demonstrates dogfight manoeuvres to (left to right) Ho Van Quy, Nguyen Ba Dich and Vo Van Man. Bay shot down the 555th TFS/8th TFW F-4C of Maj J L Robertson and 1Lt H E Buchanan southeast of Kep on 16 September 1966 (via István Tóperczer)



On 5 September the US Navy despatched aircraft to bomb targets in the Nam Dinh and Thai Binh areas, resulting in Nguyen Van Bay, Vo Van Man, Tran Huyen and Luu Huy Chao of the 923rd FR being ordered to take off from Gia Lam and fly a 210-degree heading for Phu Ly and Nam Dinh. When the pilots reached Chi Ne-Hoa Binh, they turned onto a heading of 90 degrees. A minute later, Nguyen Van Bay spotted two enemy aircraft 30 km ahead flying at 1800-2000 m. When they sighted the MiGs, the F-8s sought cover in nearby cloud. However, Bay was able to make an accurate prediction of the enemies' trajectory and ordered Vo Van Man to follow him as they sought to engage the Crusaders when they emerged once again.

When an F-8 appeared, Bay duly fired a burst from about 400-500m. Missing his target, he adjusted his aim and his second burst caught the Crusader in the cockpit. By the time he fired his third burst, the F-8 was on fire, and it hit the ground near Ninh Binh City. While Bay was carrying out this attack, Man remained in close support of his leader, clearly seeing the enemy aircraft catch fire. Man then closed to within 500 m of the second F-8 and opened fire. There were no hits, so he closed in and fired three more bursts at close range. The enemy aircraft also caught fire, before rolling inverted and diving for the ground. The Crusader (F-8E BuNo 150896) downed by Bay was the aircraft flown by USAF exchange pilot Capt Wilfred Abbott of VF-111, embarked in *Oriskany*. He ejected and was injured in the process, which meant he was quickly captured once he had reached the ground. The second F-8 fighter sustained damage, but its pilot managed to make it back to CVA-34.

On 16 September, a USAF strike formation of six F-105s and eight F-4Cs swept in from the sea to attack targets at Pha Lai, in Hai Duong Province. During this period, attacking aircraft usually flew in from the Gulf of Tonkin at very low altitude to avoid detection by Vietnamese radar. Having been picked up by the latter, the 923rd FR was told to scramble four MiG-17s to intercept them. Ho Van Quy, Do Huy Hoang, Nguyen Van Bay and Vo Van Man took off from Gia Lam to intercept the formation, heading for Pha Lai and Dong Trieu. Upon spotting the F-105s and F-4Cs flying at a height of 700 m, Quy ordered his pilots to split into two sections – Bay and Man were to attack the F-4s while Quy and Hoang pursued the F-105 bombers.

Aircraft from both sides were soon engaged in a swirling dogfight, with the F-4 crews firing eight missiles that the MiG-17 pilots managed to avoid. Meanwhile, Quy and Bay made a series of tight turns inside the Phantom IIs until the latter shot down F-4C 63-7643 (of the 555th TFS/8th TFW) southeast of Kep – although Weapon Systems Officer (WSO) 1Lt H E Buchanan successfully ejected and was captured, his pilot, Maj J L Robertson was killed. They damaged another Phantom II before heading for home.

Four days later a flight of four MiG-17s was ordered aloft from Noi Bai to intercept F-105s and F-4s that had been detected flying north to Yen Bai and Tuyen Quang. To cover the MiG-17s' return, two MiG-21s were also ordered to take off from Vinh Yen. When the enemy formation was north of Dinh Hoa and Cho Moi, the 923rd FR scrambled Tran Huyen and Nguyen Van Bien from Gia Lam. Meanwhile, Le Quang Trung, Hoang Van Ky, Tran Minh Phuong and Luu Duc Sy were directed to head from Vo Nhai at an altitude of 3000 m. Having spotted the USAF formation, Trung and Ky attacked, covered by Phuong and Sy. Quickly getting in behind the F-105s, Trung shot one down and damaged another, while Ky accounted for a third. The remaining USAF jets then turned in towards their attackers, but all the MiGs were able to return safely to Noi Bai. Hoang Van Ky was credited with his first air combat success following this mission, although USAF sources failed to corroborate the VPAF's kill claims.

Forty F-105s and eight F-4s were engaged by MiG-17s on 21 September after Nguyen Van Bay, Do Huy Hoang, Luu Huy Chao and Vo Van Man were scrambled from Kien An airfield. They were directed to fly at low altitude over Kinh Mon to Dong Trieu, where they commenced climbing in the direction of their targets. At 0905 hrs Man spotted the F-105s, and their F-4 escorts, at an altitude of 1000 m some ten kilometres away. After eight minutes of climbing, Man had gained a height advantage, and he opened fire on F-4C 63-7642 (of the 433rd TFS/8th TFW). Closing quickly to 200 m, Man inflicted mortal damage on the Phantom II – its crew successfully ejected off the coast of North Vietnam and was recovered.

Hoang, meanwhile, had attacked another F-4 from the rear after pulling out of a dive at 3000 m. Just as he opened fire, the pilot of the Phantom II lit the jet's afterburners and streaked away. Moments later, Hoang's MiG was hit by cannon fire from 1Lt Karl Richter's F-105D (from the 421st TFS/388th TFW), the VPAF pilot being forced to eject. Despite Richter's wingman also claiming a MiG-17 kill, the remaining three VPAF jets involved in this large-scale aerial battle all returned to Gia Lam.

The USAF and US Navy continued to attack targets across North Vietnam during the final three months of 1966, which in turn kept the 923rd FR active. On 9 October, Le Quang Trung and Tran Minh Phuong were ordered to intercept a flight of A-1H Skyraiders from VA-176, embarked in USS *Intrepid* (CVA-11), that was searching for the crew of an F-4B from VF-154 that had been shot down earlier that day near Vu Ban. Although the piston-engined attack aircraft were escorted by F-8s, Trung was able to shoot down one of the Skyraiders. Minutes later, while dogfighting with the escorting Crusaders, the MiGs were attacked by the A-1H flown by Lt(jg) William Patton. He holed the wings of Phuong's MiG-17 with 20 mm cannon rounds, forcing the pilot to eject from his crippled aircraft. US Navy records fail to note the loss of any Skyraiders that day.

Two MiG-17 flights, comprising Tran Huyen, Truong Van Cung, Ngo Duc Mai, Hoang Van Ky and Le Quang Trung, Le Xuan Di, Nguyen Xuan Dung and Luu Duc Sy, were ordered to intercept enemy aircraft during the afternoon of 4 December. The first flight, which left Kep at 1530 hrs, had barely taken off when F-105s were spotted closing on the fuel storage facility at Noi Bai airfield. This also happened to be the same location that the four MiG-17s were heading for, and they were soon behind a quartet



1Lt Hoang Van Ky (1939-67) claimed an F-105 during the afternoon of 20 September 1966 as his first aerial victory, although its loss was not confirmed by USAF sources. Having trained in the Soviet Union for three years from 1962, Ky began his service with the 921st FR in 1965. Two years later he moved to the 923rd FR, and VPAF records credit him with four victories during the war (VPAF Museum, Hanoi)



Le Quang Trung claimed a US Navy A-1 Skyraider shot down over Vu Ban on 9 October 1966 for his fourth official aerial victory, although the aircraft's demise was not confirmed in US loss records. Trung (1934-70) was amongst the first group of VPAF MiG pilots trained between 1956 and 1964, and he served with the 921st and 923rd FRs until 1968. In 1969, he converted to the MiG-19 and was appointed CO of the 925th FR. On 6 April 1970, Trung was killed following a mid-air collision when he failed to eject from his stricken aircraft. VPAF records credit Trung with five aerial victories (VPAF Museum, Tan Son Nhut)

of Thunderchiefs. The USAF jets immediately split into two sections, one heading east and the other west. Huyen pursued the western element, firing his guns at them but without result. The two F-105s accelerated away from Huyen, who then saw four more Thunderchiefs dive-bombing the tank farm at Noi Bai. He turned towards them and fired three bursts, but missed again. This quartet of F-105s was also able to make good its escape.

Returning to Noi Bai, Huyen sighted more Thunderchiefs flying over Ham Lon mountain. Closing in on the trailing aircraft, he fired three bursts that hit the F-105D and left the jet trailing smoke. No losses were recorded by the USAF, however.

Cung, Mai and Ky, meanwhile, were pursuing the F-105 section heading east. All three MiG-17 pilots fired their guns, but at too great a range. After the Thunderchiefs had made good their escape, Ky spotted two more, which he pursued. Firing two bursts, he saw his shells hit the right wing of one of the F-105s, although he did not see the jet crash. The MiG-17 flight then landed at Noi Bai. The second flight, comprising Ho Van Quy, Nguyen The Hon, Nguyen Van Bay and Vo Van Man, failed to engage any enemy aircraft, and they too returned to Noi Bai.

The third MiG-17 flight of Trung, Di, Dung and Sy took off last and were vectored in the direction of the Duong Bridge. Prior to reaching this location the pilots saw four F-105s bombing the Yen Vien railway marshalling yard. The MiGs attacked them and Le Quang Trung destroyed one of the jets (this claim is not corroborated by USAF loss records). Di chased another F-105 and fired three bursts at it, but his shells missed. Finally, Dung and Sy pursued a further group heading for Tu Son. During the subsequent dogfight, Luu Duc Sy was killed when his fighter was shot down by cannon fire from Maj Roy Dickey's F-105D (assigned to the 469th TFS/388th TFW). The three surviving MiG-17 pilots were then ordered to break off the engagement and all returned safely to Noi Bai.

Taking 1966 as a whole, according to VPAF documents, 55 per cent of the enemy aircraft destroyed had been shot down by MiG fighters. More importantly, it was estimated that they had managed to halt 1991 American attacks on the Hanoi area. The VPAF had flown 623 combat sorties and fought 196 aerial battles, claiming the destruction of 54 American aircraft. MiG-17 pilots had opened fire 109 times, claiming 32 American aircraft shot down. US records, however, state that just 12 aircraft had fallen to communist fighters, with as many as ten of these having been downed by MiG-17s.

Alongside their combat missions, pilots from the 923rd FR also had time for training – during the year they undertook 3761 such sorties, totalling 1399 hrs 43 mins flying time. The total number of flights included 689 combat missions and 2285 training sorties.

With growing operational experience, MiG-17 pilots became increasingly more proficient with the aircraft's cannon armament. To achieve a kill in 1965 a pilot had had to fire, on average, 65 37 mm rounds and 247 23 mm rounds, while in 1966 these figures had dropped to 43 and 150 rounds respectively.

Although the VPAF had made great operational progress in the air, on the ground, it still lacked the ability to repair and overhaul its MiG fighters. This meant that a number of battle-damaged or time-expired aircraft had



'Uncle Ho' – Ho Chi Minh – sent this basket of flowers to 923rd FR pilots as a sign of his respect for the victories they achieved during 1966. The gift is being held by two of the most successful pilots, Le Quang Trung (left) and Nguyen Van Bay (right), while Vo Van Man, Luu Huy Chao, Tran Huyen, Nguyen Ngoc Phieu, Nguyen Khac Loc, Tieu and Vu The Xuan stand with them in front of a MiG-17 (VPAF Museum, Tan Son Nhut)

had to be taken out of service despite only needing refurbishment or repair. The North Vietnamese MoD duly asked its Soviet equivalent for assistance in the form of qualified technicians to perform major overhauls. VPAF HQ's technical department cooperated with Soviet specialists and translated the MiG-17's repair manual from Russian to Vietnamese. After six months the Soviet specialists working with Vietnamese engineers and mechanics were able to extend the service lives of 30 MiG-17s by a full 12 months.

Following the arrival of reinforcements in the form of personnel trained in the USSR, as well as from the first domestic course run by the 910th TR, some 923rd FR MiG-17 pilots were transferred to the 921st to fly MiG-21s. At the same time, night-trained 921st pilots like Cao Thanh Tinh and Lam Van Lich were transferred into the 923rd. In early 1967, the latter unit was able to establish a nightfighting squadron, designated C6, which was commanded by Cao Thanh Tinh. Change was also afoot at this time amongst the regiment's day fighter units, with No 1 Fighter Squadron, led by Mai Duc Toai, being re-designated No 2 Fighter Squadron. The previous No 2 Fighter Squadron, commanded by Le Quang Trung, was duly re-designated No 4 Fighter Squadron, and it boasted more than 30 pilots. Trung was replaced at this time by Lam Van Lich, with Phan Van Tuc in charge of the regiment's ground control unit.



Groundcrew perform routine maintenance at Kep on a MiG-17F that has been camouflaged in an overall dark green finish. In 1966, the VPAF lacked the technical competence to perform major overhauls of MiG-17s and MiG-21s, so Soviet specialists worked with Vietnamese engineers to extend the fighters' service lives (*Vietnamese News Agency*)

COLOUR PLATES

1

Shenyang J-5 (MiG-17 'Fresco-A') 2310 of Pham Ngoc Lan, 921st 'Sao Do' FR, Noi Bai, 3 April 1965



2
Shenyang J-5 (MiG-17F 'Fresco-C') 2217 of Nguyen Nhat Chieu, 921st FR, Noi Bai, 20 September 1965



3

MiG-17PF 'Fresco-D' 4726 of the 921st FR, Noi Bai, late 1965



4

MiG-17F 'Fresco-C' 2047 of Vo Van Man, 923rd FR, Noi Bai, 29 July 1966



5

MiG-17F 'Fresco-C' 2077 of Phan Van Tuc, 921st FR, Kep, 21 June 1966



6

MiG-17F 'Fresco-C' 2019 of Nguyen Van Bay, 923rd 'Yen The' FR, Noi Bai, 26 April 1966



7 and 8

MiG-17F 'Fresco-Cs' 2137 and 2519 of the 923rd FR, Kep, 1966



9

MiG-17F 'Fresco-C' 2072 of Le Quang Trung, 923rd FR, Gia Lam, 17 August 1966



10

MiG-17F 'Fresco-C' 2431 of Hoang Van Ky, 923rd FR, Hoa Lac, 5 February 1967



11

Shenyang J-5 (MiG-17 'Fresco-A') 1046 of the North Korean 'Doan Z' unit, Kep, March 1967



12

MiG-17F 'Fresco-C' 2076 of Hoang Van Ky, 923rd FR, Kep, March 1967



13

Shenyang J-5 (MiG-17F 'Fresco-C') 2036 of Luu Huy Chao, 923rd FR, Gia Lam, 19 April 1967



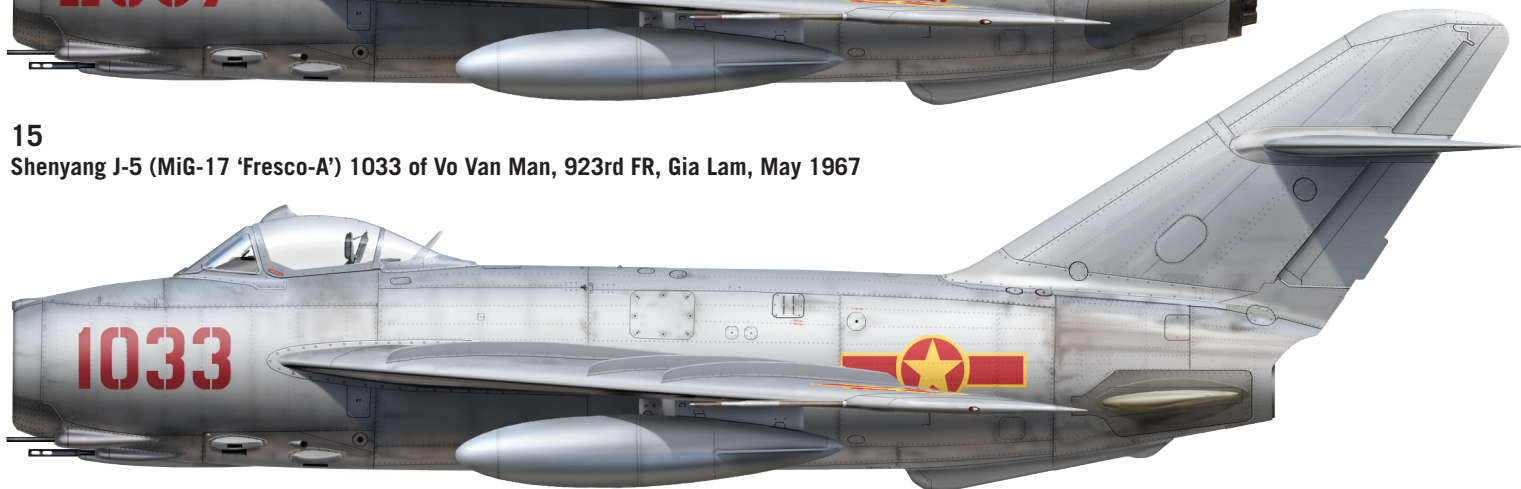
14

MiG-17F 'Fresco-C' 2537 of Nguyen Van Bay, 923rd FR, Kien An, 24 April 1967



15

Shenyang J-5 (MiG-17 'Fresco-A') 1033 of Vo Van Man, 923rd FR, Gia Lam, May 1967



16

MiG-17F 'Fresco-C' 2087 of Nguyen Phi Hung, 923rd FR, Gia Lam, 12 August 1967



17

Shenyang J-5 (MiG-17F 'Fresco-C') 2315 of Nguyen Phi Hung, 923rd FR, Gia Lam, October 1967



18

Shenyang J-5 (MiG-17F 'Fresco-C') 2055 of Le Hai, 923rd FR, Kien An, 19 November 1967



19

Shenyang J-5 (MiG-17F 'Fresco-C') 2011 of Luu Huy Chao, 923rd FR, Gia Lam, 14 December 1967



20

MiG-17F 'Fresco-C' 2039 of Luu Huy Chao, 923rd FR, Gia Lam, 17 December 1967



21

MiG-17F 'Fresco-C' 2044 of Le Hai, 923rd FR, Gia Lam, 17 December 1967



22

MiG-17F 'Fresco-C' 2064 of Nguyen Phi Hung, 923rd FR, Tho Xuan, 1968



23

Shenyang J-5 (MiG-17F 'Fresco-C') 3020 of Le Hai, 923rd FR, Tho Xuan, 3 August 1969



24

MiG-15UTI 2613 of the 921st FR, Noi Bai, 1966



25

MiG-15UTI 2717 of the 923rd FR, Kep, 1967



26

MiG-15UTI 2831 of the 925th FR, Yen Bai, 1969



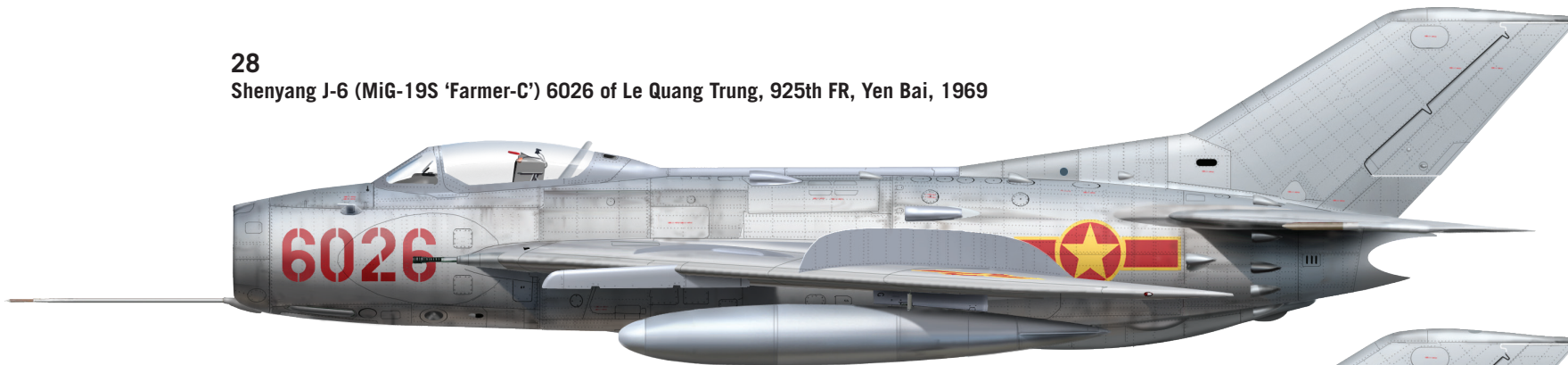
27

Shenyang JJ-5 1507 of the 925th FR, Yen Bai, April 1974



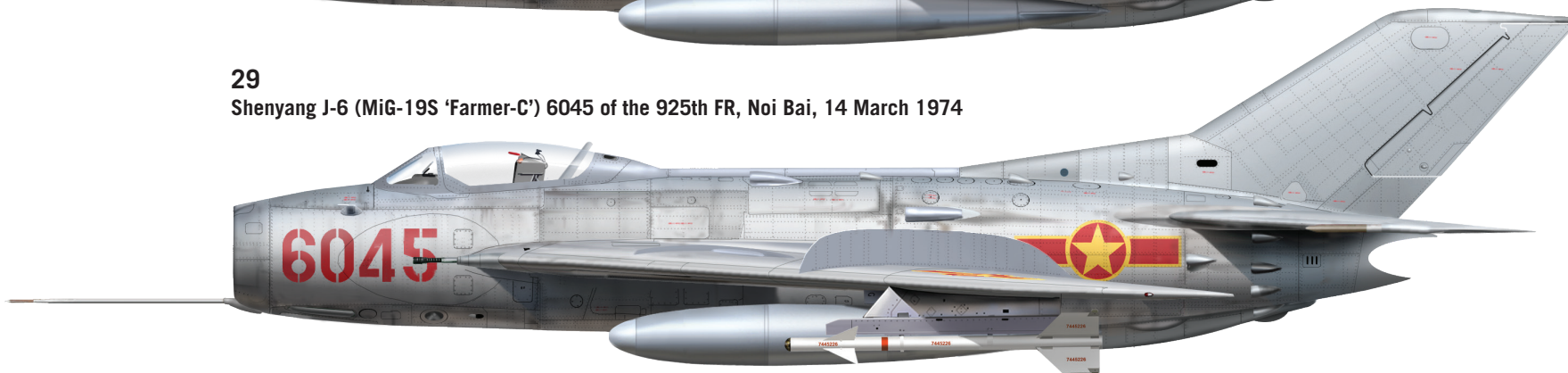
28

Shenyang J-6 (MiG-19S 'Farmer-C') 6026 of Le Quang Trung, 925th FR, Yen Bai, 1969



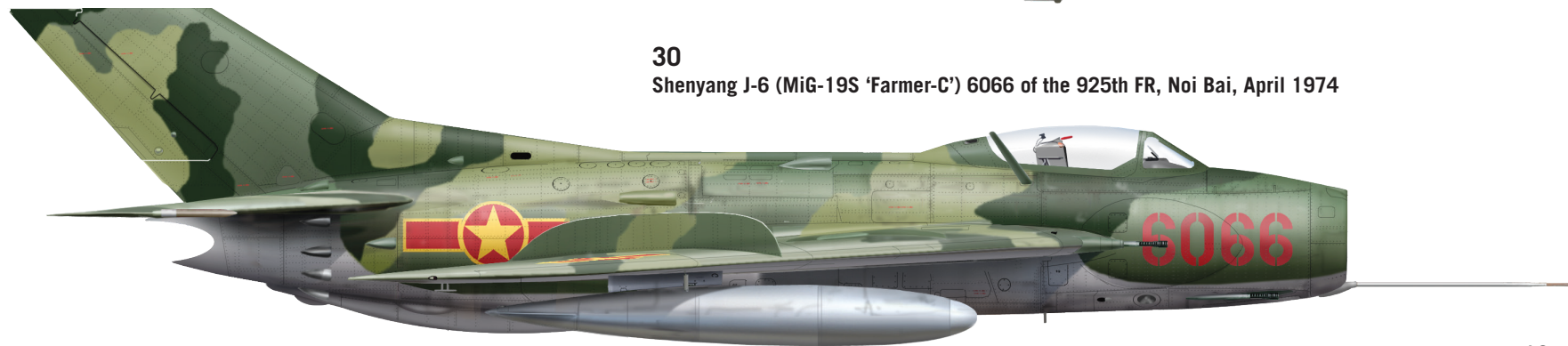
29

Shenyang J-6 (MiG-19S 'Farmer-C') 6045 of the 925th FR, Noi Bai, 14 March 1974



30

Shenyang J-6 (MiG-19S 'Farmer-C') 6066 of the 925th FR, Noi Bai, April 1974





CHAPTER THREE

NEW TACTICS

Nguyen Phi Hung, Ho Van Quy, Luu Huy Chao and Hoang Van Ky walk to their fighters at Kep air base in early 1967. (*Embassy of Vietnam in Hungary*)

American aircraft continued to attack powerplants, industrial targets, major roads and military installations in the Hanoi and Haiphong areas during the 1966-67 dry season. There were also strikes against air defence units in Viet Tri, Thai Nguyen and Quang Ninh Provinces. The intention was to isolate Hanoi from Haiphong and the two cities from other regions, and bombing campaigns targeting water supplies around the Red River were also expected. Finally, attacks on airfields continued to limit the VPAF's operational capabilities.

In an attempt to make the best use of its modest fighter force, the VPAF primarily employed its MiGs in defence of Hanoi. Although MiG-21s had made their combat debut in early March 1966, the major share of aerial fighting that year still fell to the proven MiG-17s. The combined use of the two types, employing their capabilities to the full, was regarded as vitally important by the VPAF's high command. However, the MiG-21 force was decimated by Col Robin Olds' 8th TFW in the first week of January 1967 (nine were claimed to have been destroyed by the F-4C-equipped wing) in two engagements on the 2nd and 6th, forcing the type's temporary withdrawal.

From the beginning of January 1967, the USAF continued targeting Noi Bai and Kep airfields as well as targets along Route No 1. On the 21st, a formation of F-105s and F-4s attacked Kep and targets in the Thai Nguyen area. The flight of MiG-17s flown by Ho Van Quy, Phan Thanh

Tai, Nguyen Van Bay and Vo Van Man, which had secretly moved from Noi Bai to Kep, took off at 1456 hrs and flew on a heading of 220 degrees. After three minutes the command post informed them that enemy aircraft had been detected ten kilometres ahead and to the left of them. Quy and Man soon spotted F-105s, followed by F-4s, near Dinh Lap. Almost simultaneously, the Thunderchief pilots detected the pursuing MiGs, forcing them to drop their bombs and close up in order to defend themselves. The F-4s also turned back, firing their AAMs at the MiGs.

All of the VPAF fighters engaged in a vicious dogfight with the F-105s, Quy getting onto the tail of one of the USAF fighters. He fired a burst from his guns but without result. Bay latched onto another and fired five short bursts, which he claimed struck the F-105 and set it on fire. The Thunderchief crashed seconds later. Its demise represented Nguyen Van Bay's fifth victory, and VPAF records confirm that it made him the first North Vietnamese ace of the conflict. USAF records, however, attribute the loss of Capt W R Wyatt's F-105D (58-1156 of the 421st FS/388th TFW, which had been used by Maj Fred Tracy to down a MiG-17 on 29 June 1966) to AAA, the aeroplane remaining airworthy until the pilot ejected 50 miles out to sea. Vo Van Man, meanwhile, chased another enemy aircraft as far as Nam Mau but his opponent was manoeuvring widely and he was unable to position himself for an accurate shot before being ordered back to base.

USAF aircraft again penetrated North Vietnamese airspace during the afternoon of 5 February, when groups flew in from Sam Neua over Luong Son, in Hoa Binh Province, and headed west of Hanoi. Le Quang Trung, Hoang Van Ky, Ngo Duc Mai and Truong Van Cung took off to intercept F-4s over Luong Son, while a second flight of MiG-17s comprising Phan Van Tuc, Phan Thanh Tai, Luu Huy Chao and Nguyen Ba Dich was held at readiness. At 1412 hrs Trung's fighters headed for Luong Son, and after ten minutes he sighted enemy aircraft three kilometres ahead. He made a hard right turn that put him immediately behind the rearmost F-4, although his aim was poor and his three bursts of fire missed the target.

Ky had also made a tight turn onto the tail of another Phantom II, and his aim proved to be better than Trung's. After a burst of gunfire, he saw the F-4 catch fire as it flew into cloud cover – he claimed the Phantom II as a kill, although there were no USAF combat losses recorded on this date. Mai also attempted to chase down a third F-4 but he could not get into a favourable firing position before he was ordered to return to base.

There were some important structural changes made to the VPAF in February and March 1967. On 9 February, Snr Lt Col Hoang Ngoc Dieu, ADF-VPAF Command Chief of Staff, signed order 141/TM-QL transferring the 923rd FR to Gia Lam airfield, while on 24 March Giap



After each aerial victory officially recognised by the VPAF, MiG pilots were awarded the 'Huy Hieu Bac Ho' ('Uncle Ho Badge'). This decorated group of MiG-17 pilots (at least ten of whom are wearing victory badges) includes Le Quang Trung (four medals), Nguyen Van Bay (five) and Luu Huy Chao (three). Bay became an ace on 21 January 1967 (VPAF Museum, Tan Son Nhut)



Five-victory ace Nguyen Phi Hung and Phan Van Tuc (who claimed four kills) of the 923rd FR pose in front of their MiG-17Fs in February 1967. The pilots' leather helmets and jackets were standard VPAF issue during the 1960s. Neither Hung nor Tuc survived the war (*Embassy of Vietnam in Hungary*)

Several pilots walk out to their MiG-17Fs (in overall grey or dark green camouflage) in front of the earth revetments at Kep in April 1967 (*Vietnamese News Agency*)



established the missile and radar units of ADF-VPAF by order 014/QD-GP. The VPAF structure now included the 371st 'Thang Long' Air Division (Su Doan Khong Quan 371), to which the 921st and 923rd FRs and the 919th ATR were to be subordinated, together with the airfields at Gia Lam, Noi Bai, Kep, Hoa Lac, Kien An, Tho Xuan and Vinh.

At this time the VPAF had a complement of 64 fighter pilots, 1685 engineers and 1024 ground controllers. The 371st was led by Lt Col Nguyen Van Tien (CO),

with Lt Cols Hoang Ngoc Dieu and Dao Dinh Luyen as vice commanders and Lt Cols Tran Manh and Nguyen Phuc Trach as their deputies. The VPAF's main mission remained the defence of Hanoi and the Red River dyke system, although a shortage of suitable pilots meant that the air arm was unable to respond to all intrusions. Generally, it reacted only when important targets were under attack.

Aircraft were scrambled on 19 April when the NVA barracks complex at Xuan Mai, southwest of Hanoi, was targeted. F-105F 63-8341 of the 357th TFS/355th TFW, providing *Iron Hand* anti-SAM cover for the strike force, was claimed by MiG-17 pilot Nguyen Ba Dich. The crew successfully ejected, and a rescue mission was quickly mounted. A-1E 52-133905 of the 602nd ACS/432nd ACW was subsequently shot down over Suoi Rut by Nguyen Van Tho, Maj J S Hamilton being killed. The crew of the Thunderchief were eventually captured. VPAF pilots claimed two F-105s and two A-1s destroyed on this day, although USAF records only support two of these victories. The USAF, in turn, stated that the Thunderchief pilots had downed five MiG-17s, following on from three credited to the F-105 in March.

Kien An airfield near Haiphong was raided on 23 April. The runway and airfield buildings were heavily damaged, although the base was soon operational again thanks to repairs undertaken by a joint military-civil workforce the following night. Bomb craters were filled in and damage made good just in time to allow a flight of MiG-17s to land. The Americans, however, thought Kien An was still out of action.

It was at about this time that the VPAF pilots developed the tactic of 'ambush on the ground' that involved the use of several airfields, thus leaving attackers guessing as to which base was actually in

use. Shortly after dawn, a flight of MiG-17s would be transferred as secretly as possible from its home base to the 'ambush' airfield. Visual observation posts would then pass information on to the temporary airfield by radio or telephone when approaching American formations were spotted. Once the MiGs had been scrambled, they were held at low altitude over a predetermined location so as to remain hidden from US airborne command posts. The defending pilots subsequently gained height and pounced on the enemy aircraft from above and behind, before making a quick low-altitude dash back to their home airfields, using the surrounding countryside to conceal their escape route.

In preparation for the interception of US Navy aircraft heading in from the Gulf of Tonkin, on the afternoon of 23 April MiG-17s flown by Vo Van Man, Nguyen Ba Dich, Nguyen Van Bay and Nguyen The Hon took off from Gia Lam and flew at extremely low altitude and in complete radio silence to Kien An.

The following day, 24 USAF F-105s raided Hanoi, escorted by six F-4s. They were employing their standard tactic of approaching their target at as low an altitude as possible, hoping that the high limestone mountains near the North Vietnamese capital would help them avoid detection by VPAF radar. Meanwhile, another MiG-17 flight, comprising Mai Duc Toai, Le Hai, Luu Huy Chao and Hoang Van Ky, that had been on combat standby at Gia Lam, took off and split into two pairs separated by a distance of 1500 m. Flying below 2000 m, they headed for Xuan Mai, in Hoa Binh Province. Ky soon sighted a formation of F-105s escorted by F-4s below and to his left. He and Chao duly engaged the Phantom IIs while Toai and Hai chased down the F-105s.

The Thunderchief pilots spotted the four MiG-17s at much the same time, dropping their bombs before dogfighting with the VPAF jets. Although combat novice Hai was getting his first taste of aerial action, he was able to get onto the tail of an F-105 that was flying at a height of just 100 m above the ground. Hai revealed his inexperience when he fired such a long first burst that he exhausted his ammunition. Nevertheless, he reported seeing the Thunderchief trailing smoke, although he was not able to see whether it crashed. Some VPAF sources credited Hai with a kill, but there were no F-105s lost on this date according to USAF records.

That afternoon six F-4Bs from VF-114, embarked in USS *Kitty Hawk* (CVA-63), were flying a TARCAP mission when they were detected heading in the direction of Dong Trieu and Quang Yen from the Gulf of Tonkin. The fighters were attempting to sweep the sky of MiGs ahead of a strike formation targeting Kep and Hoa Lac airfields (the first major strikes on these sites mounted by naval aircraft). The MiG-17s of Vo Van Man,



This MiG-17F has arrived at Kien An from its home base of Gia Lam on the afternoon of 23 April 1967. It was at around this time that Vietnamese pilots started to use the 'ambush on the ground' tactic to spring a surprise from unexpected locations as US strike aircraft concentrated on targeting the main fighter bases (*via István Tópercz*)



Hoang Van Ky, Le Hai and Luu Huy Chao receive a pre-flight briefing from Nguyen Van Bay (second from left) on 24 April 1967, while behind them a camouflaged MiG-17 is prepared for its next combat mission. That same day, according to VPAF records, Nguyen Van Bay shot down the VF-114 F-4B of Lt Cdr C E Southwick and Ens J W Laing, although according to US Navy loss records the jet was brought down by AAA (*via István Tópercer*)

Successful fighter pilots Luu Huy Chao, Le Hai, Mai Duc Toai and Hoang Van Ky pose in front of MiG-17F 'Red 2039'. According to VPAF records, Le Hai and Mai Duc Toai each shot down an F-105 Thunderchief in dogfights during April 1967, although neither of their victories were corroborated by USAF loss records (VPAF Museum, Hanoi)



Nguyen Ba Dich, Nguyen Van Bay and Nguyen The Hon took off to intercept the F-4s, Dich spotting them when they were ten kilometres away. The MiG-17s then split into two pairs and attacked.

The Phantom II crews had also sighted the MiGs, at which point they split up into three two-aircraft sections and turned back towards the coast. Man, who was covered by Dich, quickly got in behind an F-4. From a range of 400 m, he fired a single burst that caused the enemy jet to 'explode'. Meanwhile, Bay and Hon were engaged in a dogfight with the four remaining

F-4Bs at low altitude. Bay was on the tails of two of the aircraft, while the other pair of Phantom IIs was on his tail. With two bursts, Bay badly damaged F-4B BuNo 153000 flown by Lt Cdr C E Southwick, and Ens J W Laing. He then broke hard to avoid another Phantom II on his tail. The crew of the F-4 was later forced to eject en route to their carrier. US Navy records attributed the loss of this aircraft to AAA, however, while crediting Southwick and Laing and a second crew from VF-114 with two MiG-17 kills.

Following Bay's success, the VPAF jets broke off the engagement and landed safely back at Kien An, where groundcrews immediately hauled the MiG-17s into a concealed shelter at the base of a mountain. Shortly thereafter, US Navy Skyhawks, Intruders and Phantom IIs bombed the airfield, although once again soldiers and civilians repaired the damage in a single night. The runway was back in use the next day.

US Navy jets were again taken by surprise the following morning when attacking targets in Haiphong, four MiG-17s being scrambled to intercept them from Kien An. These aircraft had deployed here the previous day,

but had remained on the ground when the naval aircraft attacked the airfield, enabling AAA batteries to optimistically claim ten US Navy jets destroyed. The 923rd FR deployed two flights of MiG-17s, the first, consisting of Nguyen Van Bay, Ha Dinh Bon, Nguyen The Hon and Nguyen Ba Dich, was on combat alert duty at Kien An, while Mai Duc Toai, Le Hai, Luu Huy Chao and Hoang Van Ky were at Gia Lam. The Kien An quartet was ordered up at 1004 hrs.

The enemy was completely unaware of the MiG-17s because

Kien An was thought to be out of action. The A-4s dropped their ordnance and then headed back in the direction of the coast in order to make good their escape, while the escorting F-8 fighters turned to intercept any trailing MiGs. However, they were too late to stop the VPAF jets from getting in amongst the rearmost Skyhawks. Bon pursued an A-4 that was about to line up on another MiG-17, firing a burst that struck the aircraft's engine. With his jet (A-4C BuNo 147799 of VA-76, embarked in USS *Bon Homme Richard* (CVA-31)) on fire, Lt C D Stackhouse ejected into captivity. At the same time, Dich sighted another Skyhawk (A-4E BuNo 151116 of VA-192, embarked in USS *Ticonderoga* (CVA-14)), flown by Lt Cdr F J Almberg, right below him and he fired a burst at it. Dich subsequently reported that this jet also caught fire and crashed into the sea.

The F-8s that had turned back now swept in to engage the MiG-17s, Hon seeing two AIM-9s fired by one of the Crusaders at two VPAF jets directly ahead of him. He shouted a warning to his compatriots, who outmanoeuvred the missiles. While the F-8 pilot was concentrating on chasing the two MiG-17s in front of him, Hon in turn pursued the US Navy fighter. Once within range he opened fire, claiming that he hit the F-8 hard enough to bring it down near the coast. The Kien An MiG-17 pilots were then ordered to return to base, all four jets following the Red River back at Gia Lam. Between them, they were credited with the destruction of three US Navy aircraft, Ha Dinh Bon claiming Lt Stackhouse's A-4C, while Nguyen The Hon was credited with an F-8 and Nguyen Ba Dich the second Skyhawk. US Navy records note that Lt Stackhouse's jet was indeed downed by a MiG-17, but list Lt Cdr Almberg's A-4E as having been fatally damaged by an SA-2 missile. No F-8s were lost, however.

Back at Gia Lam, the second flight of MiG-17s was ordered to take off, attack the American strike formation and cover the landing of the returning first flight. Mai Duc Toai and his flight encountered USAF F-105s, rather than US Navy jets, Toai shooting down F-105D 62-4294 of the 354th TFS/355th TFW just south of Gia Lam airfield. Its pilot, 1Lt R L Weskamp, was killed.

At 1125 hrs, Trung, Diet, Tai and Tho took off from Hoa Lac airfield. Trung spotted an F-105 over Hoa Binh at a distance of seven kilometres, and he closed in and shot it down. The flight then returned to Hoa Lac. This victory was Le Quang Trung's fifth, making him the VPAF's second ace. USAF records, however, only note the loss of Weskamp's Thunderchief that day, which was listed as due to AAA or a SAM.

On 28 April, the enemy attacked areas south and west of Hanoi. In the afternoon the four MiG-17s of Mai Duc Toai, Le Hai, Luu Huy Chao and Hoang Van Ky left Gia Lam and headed for Chuong My. At the same time, another flight of



Ranking VPAF MiG-17 ace Nguyen Van Bay is pictured wearing his seven 'Huy Hieu Bac Ho'. He claimed his seventh, and last, VPAF-credited victory (an F-4C) over Ba Vi on 29 April 1967 (VPAF Museum, Hanoi)

Nguyen Van Bay frequently flew this MiG-17, which is seen here on display in the courtyard of Dong Thap Museum, in Cao Lanh city. Bay was born in the nearby village of Hoa Thanh, South Vietnam, in 1936 (*István Tóperczér*)



MiG-17s, flown by Duong Trung Tan, Nguyen Huu Diet, Phan Thanh Tai and Nguyen Van Tho, took off from Hoa Lac and headed for Ba Vi in the west. The enemy F-105s arrived on a heading of 120 degrees and were eight kilometres away when the MiG-17s first detected them. In the battle that followed, Phan Thanh Tai claimed an F-105 and Le Hai was credited with his first aerial victory. Neither was to be confirmed by USAF records.

The enemy attacks went on for an hour, and more MiG-17s were scrambled from Gia Lam. One pair consisted of Ho Van Quy and Phan Trong Van, while another four aircraft were flown by Nguyen Van Bay, Nguyen Hong Diep, Vo Van Man and Nguyen Ba Dich. Quy and Van headed for Hoa Binh, with the remaining MiG-17 pilots being sent to Xuan Mai. Quy and Van soon spotted enemy aircraft and opened fire on at least two American jets, but they achieved no tangible results. All MiG-17s returned to their airfield.

The VPAF was in the air again during the last 48 hours of April 1967, the MiG-17 pilots claiming one kill and their F-105D opponents from the 355th TFW being credited with two victories in return. On the afternoon of the 29th, four F-4 Phantom IIs flew over Long Vien, south of Ba Vi, on their way to Hanoi, while four F-105Ds entered North Vietnamese airspace to suppress SAM sites in the Hanoi area. The 923rd FR's Nguyen Van Bay, Le Sy Diep, Vo Van Man and Truong Van Cung were on standby, and were duly scrambled to intercept the American intruders.

Whilst en route to Hoa Binh, Bay spotted F-4s at a distance of eight kilometres. When the MiG-17s swept in to attack the Phantom IIs, the USAF jets immediately split up into pairs and counterattacked at separate altitudes, with one pair 1000 m above the other. Bay quickly outturned his opponents and got in behind two F-4s. After three minutes of pursuit, he shot one of them down over the Ba Vi area, before leading his flight safely back to Hoa Lac airfield. This proved to be Nguyen Van Bay's seventh, and last, aerial victory. USAF records state that F-4C 64-0670 of the 389th TFS/366th TFW was the only jet lost during daylight hours on 29 April, and that it fell to AAA 25 km west of the capital. Pilot 1Lt L H Torkleson was captured and WSO 1Lt G J Pollin was killed.

CAMOUFLAGE TACTICS

The VPAF's extensive use of camouflage and dispersal to protect its aircraft on the ground commenced in April 1967, when the US government finally allowed USAF and US Navy jets to target major airfields. A variety of means were employed to protect aircraft and prevent any accurate assessment of the fighter regiments' current order of battle by enemy reconnaissance flights. Some jets were extensively camouflaged while others were dispersed to remote areas that appeared inaccessible due to the lack of nearby roads and tracks.

In 1966, a MiG-17 overran the runway at Gia Lam and ended up in a reservoir. The aircraft was not seriously damaged, and it was quickly hauled out by a Mi-6 'Hook' helicopter and positioned back on the runway. Later, this method was also used to transport fighters on a more routine basis. After lengthy planning by Nguyen Tien Vinh and his colleagues, followed by practical testing, a special lifting device was developed using steel rods, wire cables and leather belts. This enabled VPAF fighters to be



slung beneath Mi-6s and transported to mountain caves up to 30 km away from their airfields. A 'Hook' helicopter could easily lift a fully fuelled and loaded MiG-17 weighing 5.5 tons.

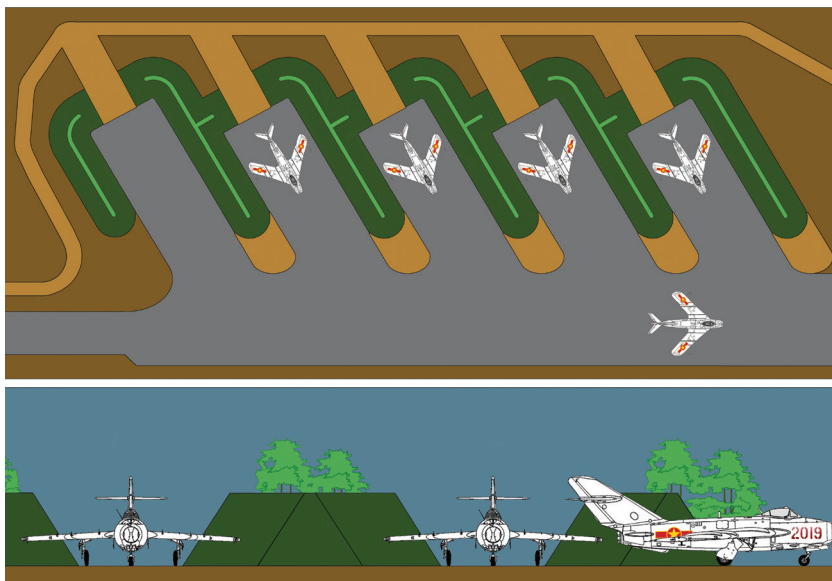
During the late spring of 1967 some fighters were spotted by a US reconnaissance aircraft in a remote site adjacent to Noi Bai airfield, suggesting that they may have been transported there by a Mi-6. Camouflaged MiG-17s were also identified within a storage area three kilometres northwest of the runway at Cat Bi airfield. This unusual location further reinforced the fact that the VPAF was moving aircraft by helicopter.

Seven pilots, including MiG-17 ace Nguyen Van Bay and future aces Luu Huy Chao and Le Hai, received medals from Ho Chi Minh during this period for their distinguished service since the outbreak of the air war, which continued to be fought with increasing ferocity in May. That month VPAF aircraft typically flew 30 to 40 sorties per day, although this figure could be as high as 78. And with regular exposure to combat came increased effectiveness.

May started with US Navy and USAF crews claiming three MiG-17s destroyed on the first day of the month. On the 4th, VPAF HQ ordered the 921st and 923rd FRs to put their MiG-21s and MiG-17s on standby, ready to take off and intercept incoming USAF formations. The 923rd FR duly scrambled the MiG-17 pair of Cao Thanh Tinh and Hoang Van Ky to intercept eight F-4Cs and 16 F-105s approaching Hoa Lac airfield. Ky

MiG-17 pilots run to their camouflaged fighters at Kep in June 1967. In the background, a natural metal MiG-15UTI can just be seen awaiting its next training sortie (*Vietnamese News Agency*)





Complex earth revetments were built to accommodate MiGs at Hoa Lac airfield in 1967. Five 'Frescos' are depicted here ready to take off – four aircraft on combat standby duty plus one in reserve (*István Tópercz*)

LEFT MiG-17 pilots Hoang Van Ky, Le Hai, Ngo Duc Mai and Cao Thanh Tinh were photographed upon their return from the aerial battle of 12 May 1967 during which, according to VPAF records, they shot down three Phantom IIs. USAF loss records confirmed only Ngo Duc Mai's victory over the 390th TFS/366th TFW F-4C flown by former Fighter Weapons School instructor Col N C Gaddis and 1Lt J M Jefferson (*VPAF Museum, Tan Son Nhut*)

claimed a Phantom II shot down over Hoa Lac but no such loss was mentioned in USAF records.

There were further attacks on the 12th when USAF F-105s and F-4s approached from the southwest and attacked targets in the Hanoi area, as well as Hoa Lac airfield. The 923rd FR had Cao Thanh Tinh, Le Hai, Ngo Duc Mai and Hoang Van Ky on standby at Gia Lam, and in the afternoon

they were scrambled to intercept USAF jets in the Ba Vi-Hoa Binh area. They climbed to 3500 m and flew west to the combat area over Hoa Lac, where they encountered American aircraft. The F-4s had followed the Vien Nam mountain range to their target, and Tinh spotted both them and the F-105s at a distance of six kilometres.

The MiG-17s had also been detected, and on this occasion the intruders had come 'loaded for bear'. The F-105s carried no bombs, being armed instead with Sidewinder missiles, while the F-4Cs were fitted with SUU-16A gun pods, each one containing an M61A1 20 mm cannon. The USAF jets had been specially armed to counter the MiGs, which split into two pairs over Hoa Lac. Tinh and Hai engaged F-105s at low level and chased them for several minutes before the former opened fire. He missed and broke off his attack, only to spot two F-4s ahead of him. Tinh quickly closed on them instead, firing several bursts and claiming a Phantom II shot down.

Mai and Ky, meanwhile, were battling with other F-4Cs at a lower altitude. Upon spotting an enemy jet popping out of cloud, Mai immediately attacked. He fired two bursts and shot down Col Norman C Gaddis in 63-7614 of the 390th TFS/366th TFW. The director of operations for the F-100 equipped 12th TFW, Gaddis was participating in a brief exchange tour with the 366th at the time. Gaddis' F-4C caught fire and crashed 20 km from Hoa Lac airfield, the pilot ejecting and being captured. His WSO, 1Lt J M Jefferson, was killed, however.

Hoang Van Ky, meanwhile, had spotted a group of F-105s escorted by F-4s flying above him. Pulling up into a climb to give chase, Ky eventually claimed a Phantom II destroyed after successfully avoiding being shot down himself.

Another MiG-17 pair, Phan Thanh Tai and Nguyen Huu Diet, had by then taken off from Gia Lam to oversee the return of Cao Thanh Tinh's flight – all six MiG-17s reached home safely.

A short while later Duong Trung Tan, Phan Trong Van, Truong Van Cung and Nguyen Van Tho took off from Noi Bai and headed for the western

side of Tam Dao hill. In their subsequent encounter with a formation of Thunderchiefs, Tan and Tho each shot down a jet over Vinh Yen, but Phan Trong Van's MiG-17 was hit by cannon fire from Capt J A Suzanne's F-105D (61-0159 of the 333rd TFS/355th TFW), forcing the pilot to eject. The day's arithmetic showed that three 923rd FR MiG-17 flights had between them scored a total of five kills, three of which were confirmed by USAF records. Only Gaddis' jet was listed as downed by a MiG though.

13 May proved to be disastrous for the MiG-17 force when USAF F-4 and F-105 crews claimed seven jets destroyed without loss during a strike on the Yen Vien railway yard.

More losses occurred the following day when the 923rd FR had two of its most experienced pilots killed in a fierce clash with 24 F-4s and F-105s over Hoa Binh. That afternoon, radar had detected two groups of enemy aircraft flying in the direction of Mai Chau and Hoa Binh-Suoi Rut to attack Hoa Lac airfield and targets west of Hanoi. The VPAF HQ command post ordered the MiG-17s to take off and intercept, the first flight launched by the 923rd FR at 1505 hrs consisting of Vo Van Man, Ha Dinh Bon, Nguyen The Hon and Le Hai. Ngo Duc Mai, Nguyen Huu Diet, Hoang Van Ky and Nguyen Quang Sinh made up the second. At 1505 hrs the first MiG-17s took off, their pilots encountering F-4Cs escorting F-105s as they approached targets in the Ha Dong area at an altitude of 3500 m.

On sighting the MiGs, the Phantom II formation split into two groups, with one flying high above the cloud layer while the second stayed just above it. When two F-4s turned in to engage a pair of MiG-17s, Man switched on his afterburner to catch the F-105s. The bombers did the same, allowing them to escape. At this point, eight more F-4s approaching from the direction of Suoi Rut engaged the Man and Bon pair in a twisting dogfight. Hon and Hai, meanwhile, were fighting another group of F-4s at lower altitude.

The four MiG-17s had taken on more than 20 F-4s beneath a layer of cloud. Below them was a mountain range, so the VPAF pilots were not able to use their preferred tactic of forcing their opponents to fight at lower level. As Bon attempted to cover Man whilst the latter attacked an F-4 in front of them, he heard his leader shout, 'He's burning!' At that moment Bon spotted Maj S O Bakke (and WSO Capt R W Lambert) fire a Sparrow missile from F-4C 63-7699 of the 480th TFS/366th TFW, which was closing on both MiGs. The weapon hit Man's jet, killing the veteran pilot who had just achieved his ace-making fifth victory (there were no USAF F-4 losses that matched Man's claim, however).

Nguyen The Hon and Le Hai were also engaged in a dogfight with USAF Phantom IIs. Indeed, the former was heard over the radio claiming to have shot one down minutes before his own jet was hit by 20 mm rounds from a SUU-16A gun pod fitted under the centreline of Maj J A Hargrove's F-4C 64-0660 of the 480th TFS/366th TFW (with WSO 1Lt S H De Muth). Hon was also killed. The VPAF command post ordered the surviving MiG-17s to break off the engagement shortly thereafter, Ha Dinh Bon and Le Hai returning to their respective bases.

During May 1967 the Americans had lost 85 aircraft in combat, of which 34 were claimed by SAM batteries, 32 by AAA and 19 by the VPAF.

Between 24 April and 25 May VPAF aircraft had logged 469 sorties, taken part in 34 aerial combats and been credited with preventing 222 air strikes. But as May turned into June, more MiG-17 pilots were lost in battle. The month started disastrously when, on the 3rd, Ngo Duc Mai, Phan Tan Duan and North Korean pilot Kim The Dun were lost over Bac Giang – F-105 pilots Maj Ralph Kuster and Capt Larry Wiggins were credited with a kill apiece. Two days later the experienced Hoang Van Ky, who had four victories to his credit, died in combat over Vinh Phuc. His comrades Tran Huyen and Truong Van Cung were also killed. All three fell victim to USAF F-4Cs flown by Maj Richard Pascoe (and WSO Capt Norman Wells), Maj Durwood Priester (and WSO Capt John Pankhurst) and Maj Everett Raspberry (and WSO Capt Francis Gullick).

F-8 pilots from CVW-21, embarked in *Bon Homme Richard*, claimed three more MiG-17s destroyed on 21 July whilst escorting A-4s targeting a petroleum storage facility at Ta Xa, near Haiphong. The VPAF noted the deaths of North Korean pilots Ly Dong Su and Ly Do In in combat on this date.

The loss of so many pilots in such a short period hit the VPAF hard. Senior officers looked for reasons why, and they concluded that perhaps the recent aerial successes enjoyed by the MiG-17 pilots had possibly made some of them conceited, careless and scornful of the quality of their opposition. Now they were paying a heavy price. During the late May to early June period, ten MiG-17 pilots had perished in seven aerial battles. The deaths of so many experienced aviators in rapid succession badly affected the morale of the novice pilots left behind. Faced with a sudden shortage of combat-qualified pilots, the VPAF also had few aircraft for them to fly by the early summer of 1967.

Aside from the jets that had been shot down, many more had been damaged at Kep in May when the airfield had come under aerial attack. Groundcrews had not had time to drag the aircraft under cover, leaving a large number of MiG-17s exposed. Like Kep, the five other airfields suitable for fighter operations – Noi Bai, Gia Lam, Hoa Lac, Kien An and Tho Xuan – had also been repeatedly attacked. With the exception of Noi Bai and Gia Lam, they were not always quickly repaired. Faced with both personnel and aircraft shortages, Gen Van Tien Dung, VPAF Commander-in-Chief and Chief of Staff, had little option but to order the MiG-17 force to conserve its resources so as to enable it to provide defensive capability over the long term.

In mid-June, meetings were held to consider the causes of the VPAF's recent losses. It was considered that while the enemy had been developing its air combat tactics and had switched to two-level formations, the North Vietnamese had continued to employ outdated procedures. Some pilots still seemed to believe that impromptu tactics would be followed by quick victories. But the fact remained that the loss of so many experienced pilots was placing a heavy burden on the survivors, who were alternating between periods of standby and actual combat, with virtually no respite.

One result of these deliberations was the adoption of a new tactic. During the second half of 1967, the MiG-17 pilots employed the 'ambush in the air' technique, which saw them circle in a predetermined area at low level along the anticipated course of approaching bombers, waiting for

their targets to appear. The plan was for the MiGs to arrive in the holding area just a few minutes before the Americans were due, and ambush them at an altitude of 50-100 m.

Between July and September, MiG-17 fighter pilots flew just 74 combat sorties – one-third of the number tallied during the previous three months. At a time when the enemy appeared to be concentrating on the complete destruction of key North Vietnamese airfields, the MiG-17 pilots were credited with the destruction of nine of the intruders. The first three were claimed during the afternoon of 23 August using the ambush tactic, the VPAF sending aloft two MiG-21s and eight MiG-17s (split into two flights) to intercept 40 USAF aircraft targeting Hanoi. An F-4D and an F-105D were claimed by MiG-21 pilots firing AAMs, while their contemporaries in the MiG-17s played their part by initiating a head-on attack.

Shortly thereafter, Cao Thanh Tinh and Le Van Phong were vectored by GCI onto an F-105 strike group flying high above them. Climbing in full afterburner to intercept them, Tinh opened fire on the last pair of Thunderchiefs from 250-200 m. He had closed to 100-50 m before the lead F-105 went down, followed moments later by his wingman. A second flight of MiG-17s, flown by Nguyen Van Tho and Nguyen Hong Diep, were credited with an F-4D kill during the same action. The USAF announced the loss of two Phantom IIs from the 8th TFW's 555th TFS, with F-4D 66-0247 (flown by Capt L E Carrigan (PoW) and 1Lt C Lane (killed) falling to the MiG-21s. No F-105s were reportedly lost to the MiGs, with 1Lt David Waldrop of the 34th TFS/388th TFW claiming Le Van Phong's MiG-17 destroyed in return.

The 923rd FR next encountered the enemy on 21 September. The first patrol of the day from Gia Lam involved Ho Van Quy, Nguyen Dinh Phuc, Bui Van Suu and Le Si Diep, although they failed to encounter enemy aircraft. Their CO, Hoang Ngoc Dieu, then took the decision to move the fighters to Kien An in an attempt to organise a more successful ambush. The MiGs would then return to Gia Lam. Cover from the MiG-17s based at Kien An, as well as from the MiG-21s at Noi Bai, was requested.

At 1515 hrs the MiG-17 flight landed clandestinely at Kien An and went on to standby. At 1637 hrs radar detected three low-flying enemy flights approaching. The MiGs prepared to take off but at the last moment Le Si Diep was ordered to take Nguyen Dinh Phuc's place because the engine in the latter pilot's jet would not start.

The four aviators climbed to 3000 m and then turned to intercept the enemy at an angle of 50 degrees over the airfield. Ho Van Quy soon spotted F-4s and A-4s six kilometres away, and he watched the enemy aircraft bank to the left in line-astern formation and commence a shallow dive. Quy immediately followed them, and when the range was right he opened fire, shooting down an F-4B. Meanwhile, Bui Van Suu also banked to the left to get in behind another Phantom II. He opened fire from 300 m and downed his opponent, although the US Navy lost no F-4s on this date. All three MiGs returned safely.

American tactics changed in October 1967, with the bombing effort in the north now focusing on paralysing VPAF operations via a tactic known as the 'in the nest' destruction principle. The result was that the bases at Kien An, Cat Bi and Gia Lam were attacked time and again. Hoa Lac was



Bui Van Suu was officially credited with three F-4s and an F-105 destroyed during the Vietnam War, claiming his first kill on 21 September 1967 – none of his victories tally with US loss records, however. Born in 1943, Suu trained to fly the MiG-17 in the Soviet Union between 1961 and 1965, and converted onto the MiG-19 in Vietnam in 1969. His service with the 921st FR began in 1965, and in 1969 he transferred to the 925th FR (*via István Tóperczér*)





Future ace Nguyen Phi Hung (left) was credited with his first aerial victory on 7 October 1967, followed by the second on 6 November 1967 when he and his flight leader, Nguyen Van Tho (right), were each officially credited with shooting down an F-105. None of these kills were corroborated by US loss records, however (VPAF Museum, Hanoi)

LEFT The Mil Mi-6 could easily lift fully armed and refuelled MiG-17 and transport them away from airfields that were regularly targeted by US jets from 1967. Such extrications took place on approximately 400 occasions, the MiGs being flown to remote mountain shelters up to 30 km from their bases. When required for combat missions, the MiGs would be flown by the Mi-6s to their patched up airfields and placed on standby, awaiting the call to scramble (VPAF Museum, Hanoi)

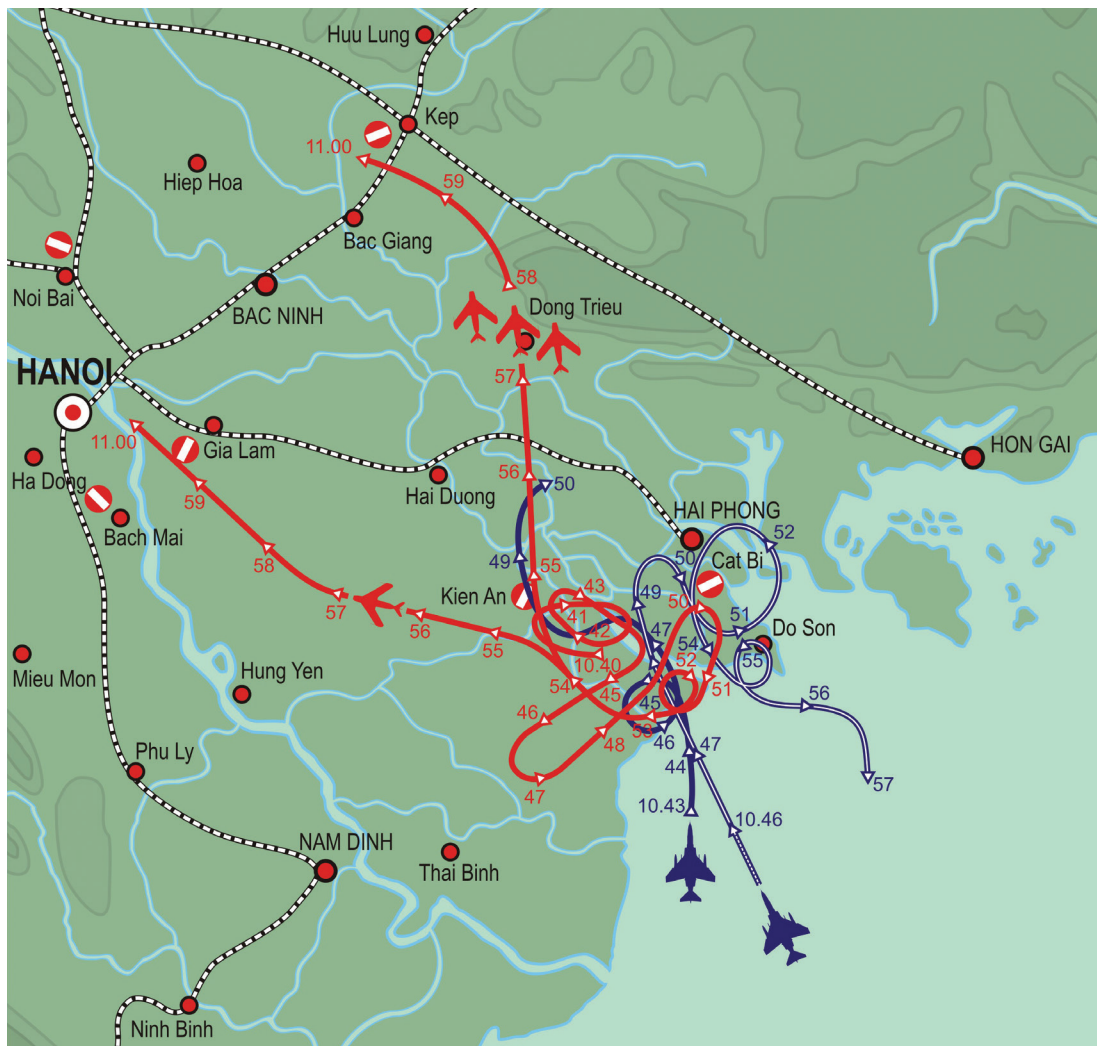
attacked no less than 33 times, Kep 29 times, Kien An 25 times and Noi Bai nine times. Following attacks in Vinh Phu Province, the population of the villages of Kim Anh and Da Phuc joined soldiers from the 921st FR in working to re-build Noi Bai air base. However, in late October 1967 both Noi Bai and Gia Lam had to be evacuated. The former was destroyed after the fifth attack by American bombers, yet the latter returned six more times in November and seven in December, lengthening the time taken to rebuild the facility. On the 24th, however, civilians and soldiers restored Kep to operational status in just one night. Kien An's runways were destroyed on 17 November, although the 28th Technical Brigade restored them in two days.

During this massive air campaign many aircraft were destroyed on the ground. In a desperate effort to save those still intact, the VPAF was forced to employ great ingenuity to protect its surviving MiGs. Earth revetments were erected between 500 m and 2000 m from the runway, with some built as far as 3000 m away. A total of 140 aircraft and 200 truck shelters were built. Thousands of trees were planted to hide the MiGs, while bamboo stakes and bales of straw were used to protect the jets from shrapnel damage. Some aircraft were dispersed to safe areas using Mi-6 helicopters, while others were concealed in villages.

A handful of these airfield attacks were opposed by VPAF fighters, including the morning strike on Hoa Lac by eight F-105s and ten F-4s on 7 October. With the raid detected by radar inbound to the target, the standby flight of MiG-17s at Gia Lam (manned by Nguyen Huu Tao, Nguyen Phu Ninh, Le Hong Diep and Nguyen Phi Hung) was ordered aloft. Taking off at 0742 hrs in the wake of two MiG-21s, the MiG-17 pilots were ordered to attack the F-105s. As they flew in the direction of Son Tay-Ba at an altitude of 1000 m, Nguyen Huu Tao spotted two F-4s and four F-105s about to attack Hoa Lac. However, just as Tao was ordering his fellow pilots to intercept the Thunderchiefs, their opponents saw them. The USAF pilots jettisoned their bombs and fled. Tao then spotted a flight of four F-4s splitting into pairs. The MiG-17 pilots also split, with Tao and Ninh pursuing the right-hand Phantom IIs as far as Vien Nam Mountain. Ninh then ordered Tao to turn back because they had flown beyond their area of responsibility.

Meanwhile, Diep and Hung had chased two F-4s that were also heading for Vien Nam Mountain. Several Phantom IIs behind them began firing missiles at the MiGs, prompting Hung to shout a warning for Tao and Ninh to look out for them. As 'tailend Charlie', Hung soon discovered that many of the missiles had been aimed at him, although he was able to avoid them all. He responded by closing the range to the enemy fighters and chasing an F-4 to the base of Ba Vi Mountain. Opening fire from 120 m, he saw his cannon shells hit and mortally damage the Phantom II. The MiGs returned safely, with future five-kill ace Nguyen Phi Hung being credited with his first aerial victory, despite it not being confirmed by USAF records.

This success proved to be a high point in a fallow month for the 923rd FR. Indeed, during the late October and early November air battles,



the MiG-17 pilots frequently found themselves taking off too late to effectively intercept the enemy. Reports from VPAF command posts were delayed, reducing combat efficiency. This might have been partly due to North Vietnamese over-confidence, but the USAF and US Navy had also learned from experience about the effectiveness of the ground control and visual control stations. The Americans were therefore aggressively using electronic jamming. They had also changed the composition of their combat formations, confusing both the MiG pilots and ground control and making it difficult to identify genuine attack formations from those consisting exclusively of F-4s armed with AAMs.

The combination of electronic jamming and new tactics cost the VPAF dearly in October, with six MiG-17s and two MiG-21s being claimed by US fighters – half of these were credited to F-4D crews from the 555th TFS on the 26th. One of the MiG-17 pilots killed was North Korean Kim Ghieng U, who fell to F-105D pilot Maj Donald M Russell of the 333rd TFS/355th TFW on 18 October. Aside from Nguyen Phi Hung's kill on

On 19 November 1967, a flight of MiG-17s claimed three F-4Bs shot down over Kien An airfield, although the US Navy confirmed the loss of just one aircraft to VPAF fighters (the Phantom II credited to Le Hai and Nguyen Phi Hung). Two VF-151 jets were in fact shot down, although US Navy records state that the F-4B of Lt(jg)s J E Teague and T G Stier was possibly hit by debris from the first F-4B when it exploded nearby. This diagram explains how the battle unfolded (*Peter Barna*)



Nguyen Phi Hung poses with his third 'Uncle Ho Badge', which he received after shooting down the VF-151 F-4B of Lt Cdr C D Clower and Lt(jg) W O Estes on 19 November 1967. Hung trained in Vietnam and the Soviet Union for five years from 1961 before joining the 923rd FR in 1966 (VPAF Museum, Hanoi)

Le Hai received his third 'Uncle Ho Badge' after the 19 November engagement when he shot down the F-4B of Lt(jg)s J E Teague and T G Stier. Born in 1942, Le Hai trained in Vietnam for four years from 1961 before commencing his highly successful frontline career with the 923rd FR in 1965. VPAF records credited him with six aerial victories during the war (VPAF Museum, Hanoi)



7 October, the only other confirmed success for the 923rd FR that month came on the 25th, when Nguyen Huu Tao claimed the F-105D of Capt R A Horinek (from the 333rd TFS/355th TFW). The Thunderchief pilot, who was captured, in turn stated that he was downed by AAA.

ELECTRONIC WARFARE

An example of USAF electronic warfare came on the afternoon of 6 November, when EB-66 Destroyers began transmitting jamming signals from both the east and west. Twenty F-105Ds and eight F-4Ds were heading for Nam Mau and Kep while two MiG-17 flights were on standby at Gia Lam. The pilots of the latter jets were Nguyen Huu Tao, Phan Trong Van, Nguyen Van Tho and Nguyen Phi Hung. There was another flight on readiness at Kep. At 1538 hrs the Gia Lam flight took off and headed for the Thanh Mien area. The MiG-17s were at 1000 m when Nguyen Van Tho saw a flight of F-4s above, with two more Phantom IIs heading straight for them. Nguyen Huu Tao ordered his pilots to take evasive action.

Tho then spotted a flight of F-105s and turned inside them, firing two bursts moments later. Meanwhile, the escorting F-4s swept in at the MiGs. They in turn manoeuvred at low altitude, drawing the F-4s down to engage them in dogfights. However, it seemed that the Phantom II community had learned the lessons about dogfighting with MiG-17s because they stayed at higher altitude.

Van and Tao attacked a target below them, turning inside an F-105 and firing from a range of 500 m. There was no chance to observe the results because an F-4D quickly got on their tails. Its 20 mm cannon shells hit both MiG-17s, whose pilots were forced to eject. Phan Trong Van got out safely but Nguyen Huu Tao was killed. Their victor was Capt Darrell D Simmonds (and WSO 1Lt George H McKinney) of the 435th TFS/8th TFW.

Nguyen Van Tho sighted three F-105s in step formation. The middle one had already been hit and its pilot ejected. Nguyen Phi Hung duly attacked the remaining Thunderchiefs, getting onto the tail of an F-105D and firing a burst at it. After this attack he pulled into a climb and encountered another F-105, firing two bursts at it from behind. Hung claimed one of these aircraft as his second victory. He then broke off the engagement, at which point he saw an F-4D approaching head-on. Without hesitation, Hung fired a burst at the rapidly closing fighter, but the Phantom II increased speed and fled.

At 1544 hrs the MiG-17s of Bui Van Suu, Nguyen Duy Tuan, Le Xuan Di and Nguyen Dinh Phuc were scrambled from Kep to fly a heading of 340 degrees. By this time the American strike formation had split into two groups, one at 5000 m and the other at 1500 m. The MiG-17 pilots eventually turned back, and as they flew past Kep airfield they spotted four F-4s in a climb. Ignoring the Phantom IIs, Nguyen Duy Tuan ordered the pilots to make a hard right turn to close with some F-105s that were approaching from the east at 3500 m. Eight more Thunderchiefs were then detected to the left of the MiGs, and Suu decided to dive on one of them instead. After firing two bursts from a range of 400-500 m, he pulled into a climbing turn toward the eastern end of Kep airfield. By then the F-105s had fled so he decided to return to Gia Lam.

Nguyen Duy Tuan, meanwhile, had spotted eight F-105s in the process of dropping their bombs. Tuan split from his leader and turned in to attack, firing an inaccurate burst from 200-300 m. The visual ground controller then ordered him to 'Pull up!' over the radio, Tuan obliging by putting his jet into a climb. He then formed up with the rest of the flight and returned to Gia Lam. Phuc had also fired at an F-105, although he had not hung around to check on the results of his attack prior to heading for home. USAF records did not attribute any Thunderchief losses to MiG-17s, listing the downed F-105D of Maj R W Hagerman (from the 469th TFS/388th TFW) as having been mortally damaged by an SA-2 that exploded close to the aircraft.

Kien An airfield was attacked on the 17th and the runways destroyed, only to be restored in two days by the 28th Technical Brigade. Early on the 19th, four MiG-17s (flown by Ho Van Quy from Gia Lam and Le Hai, Nguyen Dinh Phuc and Nguyen Phi Hung) were deployed from Kep to Kien An in order to ambush an incoming strike. Three of the four pilots involved were seasoned veterans, but Le Hai was a relative newcomer to the 923rd FR. He had accumulated just 100 flying hours in the MiG-17 prior to being in the regiment. Although Hai had since been on virtually constant standby following his transfer to the frontline, he had still not received systematic air combat training, even though the VPAF viewed this as being desirable. Such lessons had been shown to improve the flying skills of novice pilots, thus making them more confident when they engaged the enemy.

On 19 November, the US Navy sent a large force of A-4s and F-4s to attack targets northwest of Haiphong. The USAF was also active, with F-105s and F-4s flying in from the coast to strike the Duong Bridge. Yet another formation of F-105s and F-4s swept in over Xuan Mai-Hoa Binh before they too headed for the bridge. At 1102 hrs, the MiG-17s left Kien An and headed for Ninh Giang, but just after the flight formed up Ho Van Quy's radio failed. Command was transferred to Le Hai. As the MiG pilots reached 3000 m they sighted American aircraft approaching from the Gulf of Tonkin. Turning back in the direction of Ninh Giang, they increased their speed to 900 km/h in order to intercept the US Navy strike formation over Kien An.



923rd FR pilots Le Hai, Bui Van Suu, Luu Huy Chao and Nguyen Dinh Phuc prepare for their next combat mission. On 14 December 1967 Chao was credited with shooting down an F-8 (not confirmed in US Navy loss records) and Phuc's MiG-17 was in turn destroyed by another Crusader (*via István Tóperczér*)

Nguyen Dinh Phuc (left) and Le Hai (right) smile for a VPAF photographer shortly after returning to base from their highly successful 19 November 1967 aerial battle with VF-151. Phuc was killed in action defending the Paul Doumer Bridge from a US Navy strike on 14 December 1967 (*via István Tóperczér*)





Nguyen Dinh Phuc's MiG-17 was captured on gun camera film during the epic dogfight of 14 December 1967, the fighter being destroyed by an AIM-9D Sidewinder AAM shortly after this photograph was taken. Phuc, who was killed, had been downed by the VF-162 F-8E flown by Lt Dick Wyman (US Navy via István Tóperczén)

Luu Huy Chao was credited with his fourth aerial victory on 14 December 1967 when, according to VPAF records, he shot down an F-8 over Ninh Giang – no Crusader losses were recorded by the US Navy on this date. Three days later, on 17 December, he became an ace by scoring his fifth victory when he downed the 497th TFS/8th TFW F-4D of Maj K R Fleenor and 1Lt T L Boyer (VPAF Museum, Hanoi)



The A-4s jettisoned their bombs and turned to escape out to sea. Meanwhile, the F-4 flight leader also accelerated towards the sea, while the second flight of Phantom IIs swept in to intercept the MiG-17s, whose leader, Le Hai, quickly got onto the tail of the nearest F-4. He fired three bursts and his shells ripped into the F-4B of Lt(jg)s J E Teague and T G Stier of VF-151, embarked in *Coral Sea*. Le Hai flew right under the belly of the crippled Phantom II, then turned back and spotted another. He could also see that Hung's MiG-17 was on the tail of another

F-4. Hai duly decided to act as 'bait' to give Hung an opportunity to fire at 'his' Phantom II. The F-4 launched a missile, the puff of black smoke from the ignition of its rocket motor indicating to Hai that he needed to make a sharp turn. The F-4 continued to follow Hai's MiG-17, giving Hung the opportunity to fire three accurate bursts at the Phantom II. The VF-151 jet, flown by Lt Cdr C D Clower and Lt(jg) W O Estes, was shot down.

Ho Van Quy, meanwhile, had been covering Nguyen Dinh Phuc throughout this engagement, the latter claiming a third F-4 destroyed. Le Hai and Nguyen Phi Hung were each credited with their third aerial victories, and these matched the losses listed in US Navy records. There is no loss that matches Phuc's claim, however. The F-4 MiGCAP protecting the A-4 strikers had in fact been waiting for the MiGs to appear from the northwest. They were taken by surprise, therefore, when the MiG-17s scrambled from Kien An bounced them from behind. All four MiGs returned home safely to Kien An and Gia Lam.

From the middle of November the Americans stepped up the intensity of their air operations against Hanoi, despite suffering increasingly heavy losses principally to SAMs and AAA. These attacks continued into December, and on the 14th the four standby MiG-17s manned by Luu Huy Chao, Le Hai, Bui Van Suu and Nguyen Dinh Phuc were ordered to take off and intercept enemy bombers approaching Kep. On this occasion, however, the intruders turned over southern Hai Duong before heading for Hanoi and the Long Bien Bridge, also known as the Paul Doumer Bridge, and Yen Phu power station. They were not, however, troubled by the MiG-17 flight, which returned to base without having intercepted the American jets.

Later that afternoon, a large US Navy strike force of A-4s escorted by F-8Es from *Oriskany* was detected heading for targets in the Red River Delta. VPAF HQ ordered the 923rd FR MiG-17s of Chao, Hai, Suu and Phuc aloft once again, the trio of pilots climbing to 4000 m. After ten minutes, Nguyen Dinh Phuc spotted four Crusaders 20 km away. At the same time, the A-4 pilots reported the presence of the MiGs. This quickly brought the F-8Es (from VF-162) into the fray. The MiG-17 flight split into two sections and closed in, the first pair flying at 3500-4000 m and the second below them at 1500-2000 m. The F-8s and MiG-17s chased one another in a whirling dogfight, and when one of the Crusaders got behind a MiG and was preparing to fire a missile, its pilot was warned of a MiG-17 on his tail. That MiG also had another F-8E on its tail, which fired a Sidewinder but missed.

The dogfight raged from 5000 m all the way down to low level as F-8s and MiG-17s twisted and turned, seeking the advantage. The American fighters were repeatedly firing missiles and the MiGs were continuing to avoid them, but even by flying in tight circles, Le Hai was still unable to shake off the F-8 behind him. Seeing his predicament, Luu Huy Chao dived down to fire

a burst at the enemy fighter. Meanwhile, Suu and Phuc were engaged in a separate dogfight with three more F-8Es. All four MiG-17s fired their guns during the seven-minute-long battle. Luu Huy Chao claimed an F-8 destroyed over Ninh Giang for his ace-making fifth victory, although the aircraft's 'demise' is not corroborated by US Navy records.

The North Vietnamese pilots eventually broke off the combat and skimmed back over the Red River, with the F-8s in pursuit. Chao, Hai and Phuc turned back to counterattack, at which point the American fighters finally dispersed and headed for the Gulf of Tonkin. The MiG flight then re-formed, although Nguyen Dinh Phuc lagged seven kilometres behind. Seizing their opportunity, six F-8s swept in from the direction of Hai Duong, and Phuc turned back to drive them away. Moments later his fighter was hit by an AIM-9D missile fired by Lt R E Wyman. The MiG crashed in Dang Quan Village in Hai Duong Province, killing Nguyen Dinh Phuc.

Three days later, a trio of MiG-21s from the 921st FR joined MiG-17s in attacking a formation of 32 F-105s and F-4s heading for Hanoi. VPAF Headquarters calculated that they would approach from one of two directions, and decided that if they came from Tam Dao Ridge the MiG-17s would intercept them before they reached Son Duong. On the other hand, if they approached from Route No 6, a MiG-21 would head for Quan Hoa to cover the intercepting MiG-17s. A pair of Kep-based MiG-21s and four MiG-17s from the North Korean-manned 'Doan Z' 'volunteer' unit also participated in this mission but achieved no results.

At 1510 hrs enemy aircraft were seen approaching Phu Tho. While the MiG-21s scattered the bombers and claimed three F-105s destroyed in the process, the Gia Lam-based MiG-17s took on the Phantom IIs. Eight minutes later, 923rd FR pilots Luu Huy Chao, Nguyen Hong Thai, Bui Van Suu and Le Hai departed Gia Lam with orders to intercept enemy aircraft west of Hanoi. When the flight had attained an altitude of 3500 m on a heading of 360 degrees, Chao spotted four Phantom IIs flying across them to bomb Yen Bai. He called for an increase in speed and manoeuvred his MiG onto



Bui Van Suu, in 'Red 2037', and Le Hai release their brakes and commence their formation take-off from Gia Lam on 17 December 1967. They were immediately vectored by GCI to Hoa Lac, where Suu claimed an F-4 shot down while Hai covered him. Although Suu's victory was not corroborated by USAF loss records, Luu Huy Chao's F-4C claim was, the air force acknowledging that the 497th TFS/8th TFW had had a Phantom II downed by the VPAF on this date (*Vietnamese News Agency*)

923rd FR pilots Phan Trong Van, Vu The Xuan, Nguyen Huu Tao and Nguyen Phi Hung share a joke at Kep during the summer of 1967. On 19 December that year Xuan and Hung were each officially credited with destroying an F-105, although no such losses were listed in USAF records. This success was the fourth of five victories credited to Hung prior to his death in combat on 9 July 1968 (*Nguyen Xuan A*)





Vu The Xuan is seen in his green-camouflaged 'Red 2077' before the engagement of 19 December 1967. VPAF records state that he and Nguyen Phi Hung each shot down an F-105 over Tam Dao Hill near Hanoi on that date, although no Thunderchiefs were lost in combat according to the USAF (*Vietnamese News Agency*)

the tail of the F-4D flown by Maj Kenneth Fleenor (and WSO 1Lt T L Boyer) of the 497th TFS/8th TFW. He fired three bursts, which sent the Phantom II down.

By then Bui Van Suu and Le Hai had swept in to attack the two F-4s flying in the rear four-aircraft formation. Suu fired three bursts and the Phantom II dived away and crashed. Le Hai also fired three bursts at his F-4, and he saw his shells hit the aircraft's fuselage and right wing.

At 1539 hrs, Chao reported that Nguyen Hong Thai was nowhere in sight – he had been shot down and killed by US Marine Corps exchange F-4D pilot Capt Doyle Baker (and WSO 1Lt J D Ryan) of the 13th TFS/432nd TRW. The remaining three MiG-17 pilots returned safely. Suu's F-4 claim was not confirmed by USAF records, while Le Hai's victim was listed as damaged.

A joint operation by MiG-17 and MiG-21 flights on 19 December scored again over Tam Dao Ridge, although the VPAF suffered losses too. The USAF and US Navy sent in their attack formations from two directions that day, one group having flown in from the northwest while the other approached its targets in the Hanoi area from the southeast. VPAF HQ coordinated operations between the MiGs and the ADF so as to provide the most effective interception of the waves of American aircraft. SAM and AAA batteries waited as the enemy jets approached from the southeast, while North Korean-manned MiG-17s and MiG-21s took off to intercept aircraft coming in from the east and the northeast. The VPAF fighter regiments were ordered to engage the strike groups approaching from the northwest.

A pair of MiG-21s took off from Noi Bai and headed for Son Tay and Hoa Binh, while at the same time the 923rd FR command post ordered a MiG-17 flight to leave Gia Lam and head for Hoa Lac. Vu The Xuan, Nguyen Quang Sinh, Le Hong Diep and Nguyen Phi Hung climbed to 2000 m and were then directed towards Phu Tho. They then sighted a large number of F-105s and F-4s at a range of ten kilometres directly ahead of them. Xuan, ordering his flight to attack the Thunderchiefs, turned in and dived after the enemy leader. He opened fire from a range of 500 m and saw his cannon shells hitting his opponent. The F-105D rolled over and dived into the ground.

Diep and Hung pursued another flight of Thunderchiefs, both MiG pilots firing long bursts. Having seen his shells hit the fuselage of one of the F-105s, Hung went after another Thunderchief – he fired until his ammunition was exhausted. By the end of the battle, Vu The Xuan and Nguyen Phi Hung had each claimed an F-105D destroyed, although USAF records confirmed neither. The MiG-17 flight returned safely to Noi Bai. That afternoon the MiG-17s of Xuan, Sinh, Diep and Hung took off on their second combat mission of the day. The American

bombers spotted the MiGs and immediately dropped their bombs, before turning to engage the North Vietnamese fighters. The command post realised the situation was disadvantageous and directed the MiG pilots to break off the engagement. All returned safely, despite two F-105F crews from the 355th TFW claiming two MiG-17s destroyed and an F-4D crew from the 435th TFS/8th TFW being credited with a third.

1967 ended on a sad note for the 923rd FR when highly experienced pilot Phan Van Tuc was killed in a flying accident near Vinh Phuc.

According to official VPAF records, during his combat career he had claimed two F-8s, an F-4 and an F-105 shot down.

In assessing the aerial encounters of 1967, the VPAF considered that its fighter force was more effective when it was defending Hanoi and Haiphong. Cooperation between the different MiG types was judged to be good, just as it had become by that time with ADF units on the ground. A major factor contributing to this success was the rapid repair of bombed airfields. Despite these positive points, MiG pilots in the frontline still remained too ready to assume that reinforcements would be forthcoming to bolster their ranks and allow them to engage the enemy on an equal footing, rather than seeing improvement in their own performance as being the real key to aerial victory.

During 1967 there had been 129 aerial combats fought by the VPAF resulting in claims for 124 US aircraft destroyed. The 923rd FR fought 46 aerial combats, with its pilots opening fire 42 times. The results had been the destruction of 50 US aircraft, including 29 F-4 Phantom IIs, 14 F-105 Thunderchiefs, three A-4 Skyhawks, two A-1 Skyraiders and two F-8 Crusaders. American records list 24 aircraft downed in total by both MiG-17s and MiG-21s. Alongside the combat missions, the 923rd FR had also organised 3500 training sorties totalling 1145 hours and 29 minutes.

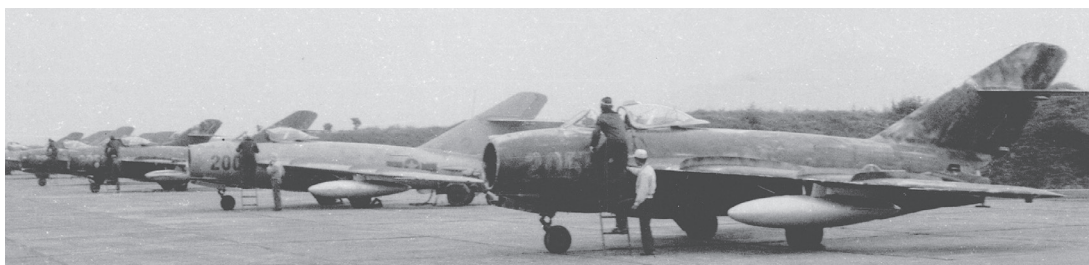
January 1968 brought no immediate respite from the bombing campaign. With the Americans continuing their attacks on Hanoi, the General Staff and VPAF HQ ordered that the MiG units on standby had to be ready to scramble at any time.

Shortly after dawn of 3 January an EB-66C was detected approaching from the northwest, the EW aircraft providing support for a large number of F-105s and F-4s trailing behind it that were heading for Hanoi. At 0739 hrs two MiG-21s, together with four 923rd FR MiG-17s (flown by Luu Huy Chao, Le Hong Diep, Bui Van Suu and Le Hai), left Gia Lam airfield. They were directed to Nha Nam, but haze prevented visual contact from being made with the USAF jets. Following the order to turn back and land, they suddenly spotted eight F-4s eight kilometres away. Just as Chao began his pursuit of a Phantom II, his wingman, Diep, took a hit from



Le Hong Diep climbs into the cockpit of his grey MiG-17F at Gia Lam airfield on the morning of 3 January 1968. One of four 923rd FR aircraft scrambled to intercept a large formation of F-105s and F-4s bound for Hanoi, Diep's fighter took a hit from an SUU-23 20 mm cannon pod mounted to the F-4D of Maj Bernard Bogolofski (and WSO Capt R L Huskey) from the 433rd TFS/8th TFW. He successfully ejected from his MiG-17. Diep's formation leader, ace Luu Huy Chao, was hit by shrapnel from an exploding AIM-4D AAM moments later, but he managed to land his damaged MiG-17 at Noi Bai. Chao claimed a share in the destruction of a Phantom II after this mission, but no F-4s were lost according to the USAF (*Vietnamese News Agency*)





Four 923rd FR fighters are manned ready for their next mission in January 1968. Le Hai was flying MiG-17F 'Red 2055' (closest to the camera) on 3 January when his leader, Bui Van Suu, claimed an F-4 destroyed. USAF loss records did not confirm his success, however (*Vietnamese News Agency*)

an SUU-23 20 mm cannon pod mounted to the F-4D of Maj Bernard Bogolofski (and WSO Capt R L Huskey) of the 433rd TFS/8th TFW and was forced to eject from his MiG-17.

A few moments later, Chao's aircraft was hit by shrapnel from an exploding AIM-4D missile fired by Lt Col Clayton Squier (and WSO 1Lt M D Muldoon) of the 435th TFS/8th TFW. It penetrated his right wing but he managed to keep his crippled aircraft in the air and continue fighting. When he turned back to re-engage, Chao spotted a flight of F-4s and immediately made a hard left turn in their direction. He fired three bursts from his guns at a range of 700 m and saw his shells hit the fuselage of a Phantom II, after which it began losing height. It was then that Chao realised his aircraft was becoming difficult to control, so he broke off the attack and returned to Noi Bai.

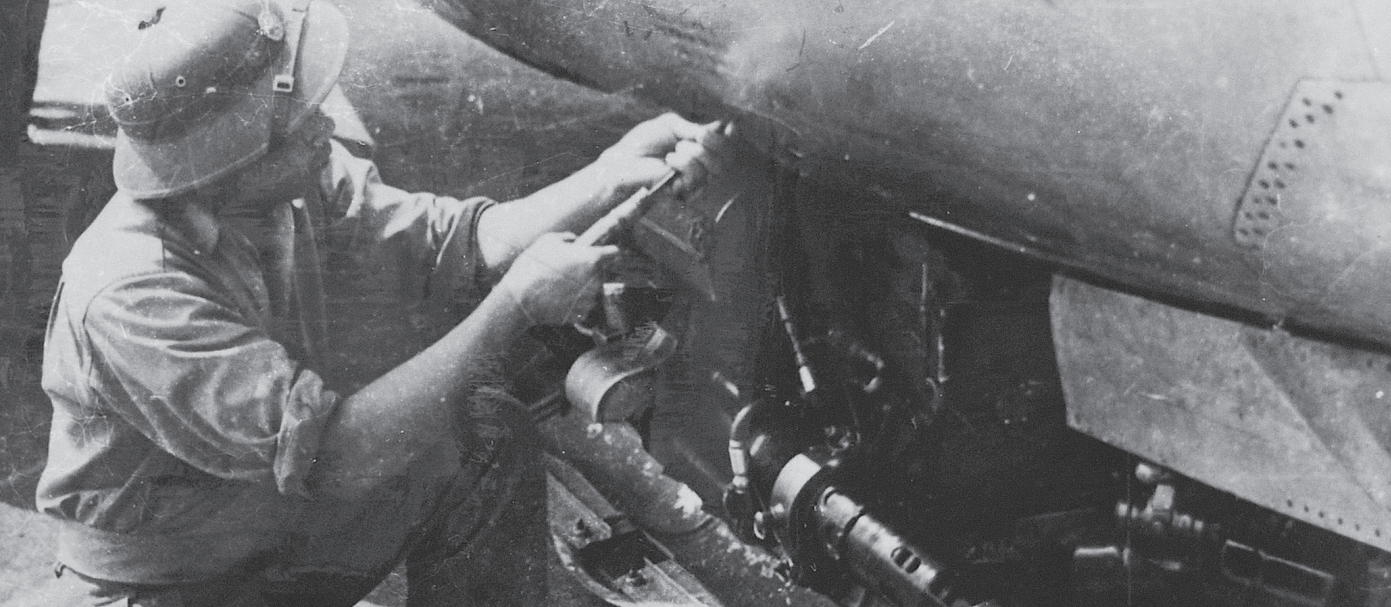
Just prior to Chao and Diep being bounced by the F-4s from the 8th TFW, Suu and Hai had turned hard left in pursuit of a flight of Phantom IIs that had flashed past them. The enemy jets were too fast for them, however. Seconds later Suu spotted three more F-4s and turned to chase them instead. He missed with his first burst of fire but hit his opponent with the second, claiming that the Phantom II then caught fire. USAF records did not confirm Suu's kill claim, however. The other enemy aircraft escaped into cloud and disappeared. Suu then descended to low level and headed in the direction of Noi Bai.

Le Hai, meanwhile, had also attacked an F-4, firing a burst from 800 m, but the Phantom II escaped unscathed. He then had to dodge AAMs that were fired at him by several other F-4s. In doing so Hai became disorientated and ran into friendly AAA fire over Viet Tri. He managed to avoid this too and followed the Red River to Gia Lam, where he landed at 0816 hrs.

On 5 January a North Korean MiG-17 pilot downed the F-105F of Maj J C Hartney (and WSO Capt S Fantle) of the 357th TFS/355th TFW shortly after they had fired a Shrike missile during a raid on the railway bridge at Dong Luc, near Kep. Thirteen days later, the North Korean 'Doan Z' unit enjoyed its greatest day of success during the conflict when two pilots claimed the F-4Ds of Maj K A Simonet (and WSO 1Lt W O Smith) and Capt R B Hinckley (and WSO 1Lt R C Jones) from the 435th TFS/8th TFW. These aircraft were bounced during a strike mission on the Bac Giang thermal powerplant, Simonet managing to down one of the MiG-17s that attacked the Phantom IIs before his aircraft was hit and set on fire.

Evening the score up a little, on 14 February USAF Phantom II crews claimed two MiG-17s destroyed without loss northwest of Phuc Yen. Both jets were shot down while performing a left-hand 'Wagon Wheel' manoeuvre favoured by the VPAF.

LEFT On 31 December 1967, the 923rd FR lost experienced MiG-17 pilot Phan Van Tuc when he was killed during a training flight over Vinh Phuc. Prior to his death he had claimed two F-8s, an F-4 and an F-105 destroyed according to official VPAF records (*via István Tópercz*)



CHAPTER FOUR

MiG-17 SWANSONG

The seemingly ceaseless series of American air raids on Noi Bai, Kep, Kien An and Hoa Lac airfields between January 1967 and March 1968 eventually had the desired effect of all but grounding the VPAF by the early spring. Some 17 MiG fighters and three helicopters had been destroyed in these attacks, as well as a number of fuel tankers. Buildings and aircraft handling areas had also been badly damaged. The four key bases were put out of action on 36 separate occasions, totalling 120 days during the 15-month airfield offensive.

Despite these raids, Tho Xuan in Thanh Hoa Province was completed in early 1968, which meant that the VPAF could now operate from here in defence of the southern front. The bomb-damaged airfields at Vinh, Dong Hoi, Cam Thuy (in Thanh Hoa Province), Anh Son (in Nghe An Province) and Gat (in Quang Binh Province) were also rebuilt. Later, the airfields at Tho Xuan, Vinh, Anh Son and Dong Hoi received new communications systems and additional runways. Closer to the capital, the VPAF command concentrated on improving three main airfields at Hanoi, Gia Lam and Noi Bai, as well as organising support command stations at Hoa Lac, Kien An and Tho Xuan. The forward command remained in Military District No 4, whilst Tho Xuan airfield was expanded to become both a major VPAF base in its own right and home for the increased activities planned to the south of the country.

In May, the Commander-in-Chief Nguyen Van Tien, Chief of the General Staff Tran Manh, his deputy, Nguyen Phuc Trach and other

An armourer has winched down a MiG-17's cannon for overhaul and then reloading. The two 23 mm Rikhter NR-23 (Norinco Type 23 weapons in the Chinese-built J-5) and single 37 mm Nudel'man N-37D cannon were mounted in the same underfuselage tray as their ammunition boxes and link ejection ports (*Museum of the 371st Air Division*)

high-ranking VPAF officers visited Military District No 4 to assess the state of its airfields, study the weather conditions and consider enemy tactics. The construction of new airfields was ordered, together with the re-construction of existing ones. The few serviceable aircraft were regularly subjected to temporary deployments, to Noi Bai, Gia Lam, Kep, Hoa Lac, Kien An, Tho Xuan and Vinh, according to operational requirements.

Between the end of 1967 and May 1968 many groups of newly graduating pilots returned home from the Soviet Union and from the air force school at Xiangyun, in China's Yunnan Province. Among them were 50 MiG-17-qualified and 30 MiG-21-qualified pilots whose arrival increased the number available for frontline duty.

In the six months from April 1968, the Americans flew 79,000 missions against Military District No 4 from Lam River, in Nghe An Province, to Gianh River, in Quang Binh Province. Units of the 921st and 923rd FRs not involved in the defence of Hanoi played an active part in defending the district's transport routes, as well as participating in battles in South Vietnam and Laos. In addition, preparations were made for future land and sea battles.

The Americans, however, felt that the Vietnamese pilots in Military District No 4 were not able to fight effectively, and therefore attached no great importance to their operations. The VPAF also suffered from the close proximity of US Navy carrier groups to this long and narrow region of the country that was hemmed in by mountains on one side and the sea on the other. The weather was also generally bad and unpredictable.

In early April 1968, as part of the VPAF plan to conduct operations over Military District No 4, the 923rd FR sent two MiG-17s down to Vinh airfield. They were soon spotted by the enemy, however, the Americans mounting more than 100 bomber sorties in a savage raid on the airfield. Both MiGs were so badly damaged that they could not be flown again, the jets subsequently being broken up and useable parts transported to Hanoi by truck.

From late 1967, the 923rd FR had operated a supplementary command station at Tho Xuan airfield under the leadership of Lam Van Lich and Mai Duc Toai. By early May 1968, the fighter regiment had completed its preparatory work to allow it to fly combat sorties over Military District No 4. It was during a major engagement on 7 May north of Vinh that the Americans became aware that MiG-21s were now operating over Military District No 4. Both a MiG-21 and an F-4B from VF-96, embarked in USS *Enterprise* (CVAN-65), were lost during the clash. In the wake of this action both the US Navy and the USAF began increasing the number of escort fighters assigned to strikes in southern North Vietnam. In order to protect the bombers more effectively, they were assigned to fly in trail formation in two- or four-aircraft sections, ready to react when MiGs were encountered.

Having seen little in the way of aerial action since mid-February due to a shortage of aircraft, the 923rd sent a pair of MiG-17s southward on 14 June after the VPAF HQ command post and VPAF Deputy Commander Dao Dinh Luyen decided to deploy both MiG-17s and MiG-21s to intercept American strike formations. That morning, future aces Luu Huy Chao and Le Hai flew from Gia Lam down to Tho Xuan. After being briefed on their mission by the regiment's command duty officer, ace Nguyen Van

Bay, they were placed on combat standby. That same afternoon, radar stations detected US Navy aircraft 60 km east of Cua Sot. At 1428 hrs, Luu Huy Chao and Le Hai took off from Tho Xuan, the latter subsequently reporting:

‘Our flight flew south, following Route 15. We flew at an altitude of about 300 m, with mountains towering alongside us. After passing Nghia Dan, the ground command post ordered us to climb to 1500 m and head for Thanh Chuong. We were still at 1500 m when the mobile ground control station at Quang Binh alerted us to six F-4s 100 degrees to our left and flying at an altitude of 3000 m. We increased speed, and when we reached 2000 m I reported sighting the target. Chao gave the order, “You attack. I’ll cover you.”

‘Because I’d switched on my afterburner in time, I was able to turn inside and quickly close on an aircraft trying to make a diving turn. With Chao covering me, I turned left and tried to hit an F-4, but with no success. The enemy flight leader made a steep turn. I chose to follow the wingman, turned left and dropped the nose of my MiG to lose some altitude and close up. I fired two long bursts. The F-4 caught fire and crashed near our radar station. I made a left climbing turn to regain my original wingman position.

‘Suddenly, another F-4 popped up ahead of us at an altitude of 1000 m. I closed in before opening fire, but I didn’t hit the F-4, which escaped. Chao recognised the enemy’s attempt to leave on a southeasterly heading. He turned right and found an F-4 dead ahead. He fired a burst at it, but the range was too great and he missed. Turning right, he saw another F-4 heading for the coast. Chao positioned himself behind the target and fired two or three quick bursts. The F-4 blew up and crashed.’

As the rest of the Phantom IIs departed, the MiG-17 pair flew along Route No 15 and landed safely at Tho Xuan. US Navy records do not confirm these losses, however.

Since the deployment to Military District No 4, both the 921st and 923rd FRs had emerged victorious from three successive aerial battles, claiming four US Navy Phantom IIs destroyed (only two were confirmed by US Navy records). Once they had recovered from the surprise of encountering MiGs so far from their northern bases, the US Navy in particular began employing new tactics against the VPAF fighters. It assigned a larger number of F-8 Crusaders to conduct fighter missions and deception operations designed to lure MiGs into engaging them. Usually flying in step formation, with extended separation between aircraft to facilitate splitting up to attack opposing fighters, the F-8 pilots also tried to lure the MiGs into flying over the Gulf of Tonkin within range of missile-armed warships. Finally, they exploited locations with parallel mountain ranges, enabling them to fly into North Vietnamese airspace at low altitude without being detected by radar.



Aces Luu Huy Chao and Le Hai each claimed an F-4B shot down over Do Luong and Thanh Chuong, in Nghe An Province, on 14 June 1968, although the US Navy recorded no Phantom II losses on this date (VPAF Museum, Hanoi)

Nguyen Phi Hung claimed an F-8E victory on 9 July 1968 to become an ace, only to lose his life shortly thereafter when shot down by VF-191 Crusader pilot Lt Cdr John Nichols. No F-8s were downed on this date according to US Navy loss records (VPAF Museum, Hanoi)



These tactics paid dividends when, on 9 and 29 July, the 923rd FR lost its two most-experienced MiG-17 pilots in combat with F-8s. The unit had established a number of visual observation posts in the Cam Bridge and Vinh airfield areas in an effort to negate the new tactics being used by the US Navy. The 923rd had also formed a forward combat element headed by deputy CO Le Oanh and ground control officer Le Viet Dien. Nguyen Phi Hung and Nguyen Phu Ninh were sent to Tho Xuan on 9 July to intercept the low-flying fighters, both pilots being ordered to covertly take off and then circle over Thung Nua Mountain awaiting further orders.

The pair took off and followed Highway 15 at an altitude of 150 m, and after passing Nghia Dan GCI informed them of two F-8s flying over the Cam area. Heading for Thanh Chuong, Ninh spotted the Crusaders ahead and at 45 degrees to the right of them. As they climbed to 1500 m Hung ordered Ninh to attack, the latter immediately switching on his afterburner and turning in hard. The two F-8s also went in to afterburner and turned for the mountains. As Ninh continued the chase, the F-8s split up. Ninh pursued the Crusader that had turned to the left, firing three cannon bursts at it – his shells hit the top of the jet's fuselage. Ninh then made a hard turn to break away, spotting Hung pursuing another F-8 towards the Gulf of Tonkin as he did so. Nguyen Phi Hung stuck with his opponent and his burst of cannon fire hit the F-8, which he claimed dived into the sea (according to US Navy records, no F-8s were lost on this date).

The command post then ordered the MiG pair to head for home, but during their return flight they were intercepted by more F-8s over Nghia Dan. Hung told Ninh to continue back to base, then turned around to attack their pursuers. All alone, low on fuel and almost out of ammunition, Hung spotted one of the F-8s launching a missile at his MiG. Ninh, meanwhile, attempted to rescue his leader, but after failing to find Hung he descended to lower altitude before returning to Tho Xuan. Hung avoided two enemy missiles but his aircraft was hit by the third. Immediately turning back towards the coast, he was too low to eject and was killed. By shooting down the F-8 over Ha Tinh, 25-year-old 1Lt Nguyen Phi Hung had scored his fifth victory and had, briefly, become an ace. He had then been shot down by F-8E pilot Lt Cdr John Nichols of VF-191, embarked in *Ticonderoga*.

The US Navy had another tactic up its sleeve when it came to dealing with increased MiG activity in Military District No 4. The idea was that when VPAF jets were encountered, a flight of F-8s would try to lure them out over the Gulf of Tonkin, where another flight of Crusaders would be lying in wait. Such tactics were employed on 29 July, when a large formation of US Navy strike aircraft, escorted by fighters, attacked transport and other targets at Thanh Chuong, Vinh and Nghe An. In response, VPAF HQ ordered its fighter pilots to defend Route 7 and the Duc Tho and Gianh ferry crossings.

According to the Vietnamese plan, the MiG-17s would fight at low altitude while MiG-21s engaged other enemy aircraft at high altitude. At 1016 hrs command duty officer Dao Dinh Luyen ordered the primary MiG-17 flight of Luu Huy Chao, Hoang Ich, Le Hai and Le Si Diep to take off and head for Nghia Dan, in Nghe An Province. Four minutes later the MiG-21 pair took off to provide support and cover for the mission. Complete radio silence was maintained.

The MiG-17s climbed to an altitude of 2000 m, at which point Chao spotted F-8s four kilometres away. The MiG-17s duly engaged eight Crusaders in a hectic dogfight. While Chao was chasing one of the American fighters he spotted another aircraft flying across his nose from left to right. He immediately turned towards it and fired from a range of 400 m. His shells hit the F-8's nose. He fired a second burst until his ammunition was exhausted. Chao broke off the engagement and turned away hard. When he rolled his aircraft back to level flight in order to see what was happening he spotted a missile streaking towards Hoang Ich's MiG. Chao shouted over the radio for Ich to turn hard to avoid the weapon.

Le Hai was also in the thick of the action, as he recalled years later;

'I spotted an F-8 making a left-hand turn and manoeuvred hard to turn inside him. When the range was right I fired my first burst, but my shells went behind his tail. I fired a second burst and the shells hit the F-8, which rolled completely upside-down. I broke away and saw another F-8 flying underneath and parallel to me. I immediately rolled inverted and dived in pursuit of the enemy aircraft. When I had a stable view of the jet in my gunsight I fired a burst from my cannon but soon ran out of ammunition. The F-8 fled towards the Gulf of Tonkin. I returned to Tho Xuan airfield.

'We lost our comrade Le Si Diep in that battle. He'd just returned from hospital after being wounded so hadn't yet recovered his strength. For that reason, he was left behind when we turned sharply. Just as I took aim and was preparing to fire at the rearmost F-8, I heard Chao's voice shouting, "Eject! Eject!" Looking back, I saw that Diep's MiG had turned into a ball of flames but I didn't see his parachute open.'

The F-8 claimed by Le Hai represented his fifth victory, making him an ace according to VPAF records. US Navy records, however, did not confirm that any Crusader had fallen victim to a MiG. Fellow ace Luu Huy Chao also claimed an F-8 destroyed. Le Si Diep's fighter had been hit by a missile launched by Cdr Guy Cane in an F-8E from VF-53, embarked in *Bon Homme Richard*. Diep had tried to level his wings and climb but his MiG-17 crashed northwest of Tan Ky, in Nghe An Province. 1Lt Le Si Diep ejected but it was an unsuccessful escape, and he was listed as killed in action.

On 13 August the VPAF-ADF issued order 730/TM-QC signed by Col Dang Tinh, command CO, concerning the organisation of air force units, including the 923rd FR. The regiment was reinforced with additional personnel for its combat, logistical, communications, ground control and technical groups. This took its total complement to more than 400, including 80 pilots. The regiment subsequently organised 195 training days, during which nearly 4000 takeoffs were made and more than 1500 hours flown. In addition, there were 120 nocturnal flights totalling 20 hours. To improve its infrastructure, the regiment built 198 bunkers to provide protection against cluster bombs, as well as three cast-concrete shelters for personnel, aircraft and equipment.



In 1971, the 923rd FR practised its plans for intercepting enemy bombers or reconnaissance aircraft during 110 training days that saw more than 4000 sorties completed. This group photograph of MiG-17 pilots undertaking such sorties was taken that same year. They are in the front row, from left to right, Le Xuan Di, Nguyen Van Sinh, Dinh Trong Luc, Do Nhon and Nguyen Van Luc. In the back row, from left to right, are an unnamed technician, Nguyen Phu Ninh, Truong Cong Thanh, another unnamed technician, Tran Cao Thang, Nguyen Van Ngoi and Vu The Xuan (standing) (VPAF Museum, Hanoi)



Technical personnel from the A-33 Aircraft Repair Facility work on a MiG-17's Klimov-designed VK-1 engine. The latter was a single-spool turbojet with a centrifugal compressor. The entire rear fuselage could be pulled off, thus providing easy access to the engine and its accessories (VPAF Museum, Tan Son Nhut)

trained and numerically superior American forces, the VPAF, with fewer pilots and aircraft, had gradually developed its proficiency so that losses had been reduced as lessons were learned. The MiG fighter regiments had managed to provide a satisfactory response, with an effective defence of both Hanoi and Military District No 4. North Vietnam had started with 36 pilots and 36 MiG fighters, and by 1968 it had two fighter regiments with double the number of fighter pilots and five times the number of aircraft.

THE BIG PAUSE

Although the VPAF-ADF maintained combat readiness – in 1969 the 921st and 923rd FRs flew 540 combat sorties between them – the North Vietnamese used the bombing lull to their advantage by concentrating on development. In February the 923rd received a batch of MiG-17 pilots who had just recently graduated from the Air Force Training School, and they were sent to Kep. In May, the regiment focused on refresher training to ensure basic competence was maintained, particularly in bad weather.

Training in two- and four-ship formations was organised, while the more experienced pilots concentrated on flying in bigger formations of eight to 12 aircraft and in combat against all types in the enemy's inventory. The result was that about 60 per cent of pilots qualified to fly in all weather conditions, while all reached the required proficiency levels for fighting in four-ship formations. This was despite the 923rd having to change airfields six times during the year while still maintaining the rate of training and

operational sorties required by the VPAF. The 6000 training flights and 2400 combat sorties it completed represented a 50 per cent increase on the previous year.

The ADF and the 923rd FR maintained a state of readiness over an area from Thanh Hoa to the Gulf of Tonkin. A new adversary for the North Vietnamese pilots following the cessation of *Rolling Thunder* was the unmanned Ryan AQM-34 Firebee drone that US forces started

A number of Ryan Firebee drones were downed by MiG-17s during the lull in the air war over North Vietnam following the cessation of Operation *Rolling Thunder* on 2 November 1968. This particular example is seen on a beach near Haiphong in 1969 (Vietnamese News Agency)



to employ on reconnaissance missions over the north. Intercepting them duly became the MiG-17 pilots' main task. The 923rd had actually started combatting the Firebees in 1966, when a MiG-17 pilot had downed one – their contemporaries flying MiG-21s had accounted for six that same year. In 1968 a total of 17 Firebees was claimed, of which the MiG-17 pilots destroyed two, and in 1969 the two fighter regiments downed a combined total of 14, with the 921st scoring 12 kills and the 923rd two – one of the latter was credited to ace Le Hai on 3 August 1969.

The following year the Americans changed the way they operated the drones. Instead of arriving in North Vietnamese airspace from Laos and then heading for Hanoi, the Firebees now flew from the Gulf of Tonkin at low level to reconnoitre targets in Haiphong and along Route 10. In 1970, the MiG-17 pilots flew 70 combat sorties and had six encounters with Firebees. They opened fire on three occasions and shot down two drones.

Returning to 1969, the 923rd had moved to Kep airfield that year, with the regiment's maintenance battalion arriving there from Kien An to check its MiG-17s and repair damaged aircraft. This systematic process enabled the unit to make an accurate assessment of the condition of all of its MiG-17s and MiG-15UTIs and to plan maintenance activity aimed at increasing aircraft service lives.

During 1969, the 923rd had flown 179 aerial combat sorties totalling 88 hours and 37 minutes flying time. The MiG-17s had encountered enemy aircraft on six occasions and opened fire three times, downing two drones. In September, 24 MiGs – 12 MiG-17s and 12 MiG-21s – from the 921st and 923rd FRs were chosen to make a farewell flypast over Hanoi's Ba Dinh Square to honour Ho Chi Minh, the legendary North Vietnamese leader having died from heart failure in his home in Hanoi at 0947 hrs on the 2nd. All aircraft subsequently landed safely at their bases.

In 1970, key unit statistics for the year included just 116 combat sorties totalling 60 hours and 38 minutes flying time. With the continued absence of manned US combat aircraft over North Vietnam, the 923rd FR focused on training instead, thus improving the skills of all personnel, including pilots and engineers. It organised 110 training days, during which a total of more than 4000 sorties were flown. All combat-experienced pilots were able to perform long-distance missions and practice interceptions in all conditions, including thick cloud. Both medium- and low-altitude dogfights in two- and four-ship formations were also tested. Some pilots flew up to 150 sorties totalling around 50 flying hours, although the unit-wide average was 68 takeoffs for experienced aviators and just 18 for new arrivals.

The following year, North Vietnamese MiGs were scrambled six times to intercept Firebee drones. On 9 March 1971 the 923rd's Luong Duc Truong and Nguyen Van Hung took off in their MiG-17s to intercept a Firebee. Quickly spotting the small drone, they closed in and shot it down. Minutes later, however, Truong's jet inexplicably crashed and he was killed.



Le Hai demonstrates how he achieved his sixth victory to fellow MiG-17 pilots Vu Van Dang and Trinh Van Quy. On 6 March 1972, Hai claimed a US Navy F-4 destroyed, although his wingman, Hoang Ich, was shot down and killed in the same action. No US Navy Phantom IIs were lost on this date, however (VPAF Museum of Hanoi)

1971 also saw the 923rd increase its pilot training to more than 4000 flying hours during the course of the year. The unit worked hard to keep up with the arrival of new pilots, the majority of whom quickly attained combat-ready status. This in turn meant that the regiment had fighters on standby at all airfields in Military District No 4 by year-end.

THE LAST DOGFIGHTS

As a direct result of this activity, by the start of 1972 the number of MiG-17 pilots qualified to fly combat missions in adverse weather conditions and at night had steadily increased. Concurrently, a second command group able to take over the control of aerial battles at any time was created within each regiment. On 3 February, the 927th Lam Son Fighter Regiment was established, and it began operations north of the 20th Parallel with the MiG-21PFM (Type 94). Meanwhile, the 921st continued to fly the MiG-21MF (Type 96) over Military District No 4, although it was available for missions over the north at any time. The western and northwestern regions of the country were allocated to the MiG-19s of the 925th FR, while the eastern and northeastern areas of Vietnam were defended by the 923rd's MiG-17s.

From January 1972, the 923rd's maintenance personnel focused on extending the service lives of their now obsolescent MiG-17s. Most of the original aircraft components were out of date and some aircraft were in need of an overhaul. Engineers and mechanics tested Vietnamese-built spare parts and judged them suitable for replacing the original ones.

During the year, the 923rd's pilots fought in many aerial battles and claimed six US aircraft shot down – some of these victories were actually gained by pilots flying training missions. The regiment also suffered its fair share of losses, with US fighters claiming 14 MiG-17s shot down between 6 March 1972 and 12 January 1973.

The 923rd's first air-to-air engagement in three-and-a-half years took place on 6 March when the regiment intercepted US Navy aircraft attacking targets in Military District No 4. VPAF HQ had decided to order a joint MiG-17 and MiG-21 operation that saw the jets flying at different altitudes in the area south of the Lam River near Anh Son and Tho Xuan airfields. A MiG-21 pair flew down to Anh Son on the afternoon of the 5th, with another pair kept on standby at Tho Xuan. At the same time, the 923rd's

In 1972, the 923rd FR organised 3500 training sorties totalling around 1500 flying hours. The regiment also trained 30 flying instructors, 20 flight officers, more than 40 flight leaders and 14 new pilots. Here, Lam Van Lich instructs his young comrades (*Vietnamese News Agency*)



Le Hai and Hoang Ich were on duty at Tho Xuan. The MiG-17 pilots took off and flew along Highway 15 at an altitude of 400 m. After reaching Tan Ky, in Nghe An Province, they climbed to 1200 m, and 12 minutes later they turned right toward Anh Son when enemy aircraft were sighted southwest of the airfield. Hai also saw the MiG-21s taking off from Anh Son, as well as two F-4s eight kilometres away at an altitude of 1000 m and two more Phantom IIs at 3000 m. Hai decided to fly a left-hand orbit over the airfield while maintaining an altitude of 1200-1500 m, awaiting the attackers' arrival.

After the third complete circuit, he suddenly saw two missiles streaking towards the MiG-21s. Hai called for a turn towards the two F-4s in front of the VPAF jets, firing two bursts at one Phantom II and seeing his shells hit the top of the aircraft's fuselage. When the F-4 dived towards the ground, Hai turned left and flew back in the direction of the airfield. Spotting more F-4s behind him, the ace turned to engage them but soon ran out of ammunition. Meanwhile, his wingman, Hoang Ich, also pursued enemy aircraft. He did not fire his guns but confirmed his leader's victory over the F-4. Hai then ordered Hoang Ich to break off the engagement and return to Tho Xuan. He initially acknowledged, although neither pilot was able to see the other's aircraft at the time. During the return flight, Hai repeatedly called his wingman but received no reply. Flying back to his airfield at an altitude of 100 m, he landed safely.

Hai had claimed his last aerial victory of the war, although it was not confirmed by US Navy loss records. While the two MiG-17s were returning to Tho Xuan, more US Navy had flown into Military District No 4 from the Gulf of Tonkin. Hoang Ich reported that two F-4s were chasing him and he had decided to turn back to attack them. The Phantom IIs split up, which meant that while he was chasing one, the other was able to get behind him and fire a missile. The MiG-17 was hit over Nghia Dan, Hoang Ich flying too low to eject, and he was killed. He had fallen victim to Lt Garry Weigand (and RIO Lt(jg) W C Freckleton) of VF-111, flying an F-4B from *Coral Sea*.

May 1972 proved to be the worst month of the entire war for the 923rd FR in terms of combat losses, with ten MiG-17s being claimed by USAF and US Navy fighters. This escalation in hostilities was prompted by the commencement of Operation *Linebacker* by the USAF's Seventh Air Force and the US Navy's Task Force 77 on 9 May. Aimed at halting the transportation of supplies and material into North Vietnam in an effort to slow down the communists' Easter Offensive of South Vietnam, *Linebacker* saw the port of Haiphong mined, deep strikes against military installations and the targeting of key roads and rail links. The airfields at Vinh, Tho Xuan, Hoa Lac, Yen Bai and Na San were also heavily bombed and communication links badly damaged. In response to *Linebacker*, the VPAF decided to concentrate its entire fighter force on the defence of Hanoi and Haiphong. The 923rd deployed its MiG-17s 'into the field', operating them from alongside the Hanoi-Lang Son railway line and in the vicinity of Highway 5.

Having lost a single MiG-17 in combat with US Navy F-4s on both 6 and 8 May, things got no better for the 923rd on the 10th – a day that saw some of the largest aerial battles of 1972 end with US Navy Phantom IIs claiming seven MiG-17s destroyed (along with a MiG-21, with three more 'Fishbeds' credited to USAF F-4Ds). That morning, US Navy F-4s, A-6s and A-7s attacked Hai Duong's railway marshalling yard, petroleum/oil/lubricants storage facility and bridge. Bridges at Lai Vu and Phu Luong were also targeted. Four MiG-17s were scrambled from Kep to protect the bridgehead at Lai Vu, and 15 km from Hai Duong, Nguyen Van Tho and Ta Dong Trung engaged the American force. Trung opened fire on one of the US Navy jets but missed, while Tho went after an A-7, although his aim was also poor. Realising that an F-4 was on his tail, he banked sharply and the Phantom II flew past him.

Seeing two more F-4s trailing Do Hang and his wingman Tran Van Kiem, Tho warned them of the danger. Although Kiem managed to evade the



Engineer Truong Khanh Chau (standing) is seen calculating whether a MiG-17 will decelerate sufficiently enough to allow the aircraft to land at a temporary airfield with a short runway. Note the chalkboard illustration of a MiG-17 with its braking parachute deployed in the background (Museum of the 371st Air Division)



After the war, MiG-17s were still used by the 923rd FR for training and refresher flights. This 'Fresco-F' is ready to leave its ex-USAF shelter, a legacy of the American presence at Phu Cat air base (VPAF Museum, Tan Son Nhut)

Phantom IIs, Hang was not so lucky. His MiG-17 was hit by two missiles and he was forced to eject. According to Vietnamese reports, Hang was then shot dead whilst in his parachute by the Phantom II crews that had just destroyed his aircraft, but this claim has been strongly refuted by the US Navy. Furthermore, the F-4s involved were exclusively missile-armed in any case.

Tho, meanwhile, noticed that Kiem was also being chased by another F-4 and he opened fire but missed. Tho then ran out of ammunition. Kiem's MiG was hit and he did not eject from the jet. By this time Tho was also being fired on by US Navy fighters, and his MiG-17 was eventually hit by a missile. He ejected northwest of Tu Ky. Phantom II crews from VF-96 (six kills) and VF-51 (one

kill) were credited with inflicting the heavy losses on the 923rd FR on 10 May. Eight days later, four MiG-17s (along with MiG-19s and MiG-21s) tangled with USAF aircraft over Kep. The 923rd FR pilots were operating in pairs, supporting one another, and they managed to avoid American missiles fired at them – two MiG-19s were lost, however.

The 923rd FR claimed just one aerial victory over the Americans in the second half of 1972, with MiG-21 units seeing the bulk of the action through to the signing of the Paris Peace Accords on 27 January 1973. That success came on 11 July when Han Vinh Tuong and his wingman Hoang The Thang were on a training flight acting as 'targets' for soldiers operating A-72 (Soviet-built SA-7 'Grail') shoulder-launched ground-to-air missiles over Kep. Whilst circling the airfield, they sighted two enemy aircraft over Pha Lai, and ignoring GCI orders to land at Noi Bai, Tuong turned hard to the right and spotted two F-4s just 5000 m away. Ditching their external tanks, both MiG pilots attacked. Tuong fired three bursts from an altitude of 1000 m and a distance of 500 m, hitting the F-4J of Lt Robert Randall (and his RIO Lt F J Masterson) of VF-103, embarked in USS *Saratoga* (CVA-60).

Covering his wingman, Tuong followed another F-4 and opened fire, but this time there was no success. Moments later another F-4J got in behind the MiGs and scored a missile hit on the aircraft flown by Thang, who ejected. He had been seriously wounded, however, and he died in Ngoc Van.

There is no corresponding MiG kill claim in US Navy records for this date, although they do list the loss of the VF-103 F-4J from *Saratoga*, its crew being taken prisoner. The date it was shot down is given as 10 July, however.

Although the 923rd's pilots had to continue standing combat alert duty with their now venerable MiG-17s well into 1973, the unit maintained its programme of training. Indeed, its pilots flew 3500 sorties totalling around 1500 flying hours in 1972. Such training resulted in the regiment's pilots being qualified to fly in all weather conditions and at night. All told, around 30 flying instructors, 20 flight officers, more than 40 flight leaders and 14 novice pilots received the training necessary for them to be added to the unit's operational roster.

Over the next two years the 923rd claimed to have shot down three Firebee drones, but in doing so lost three MiG-17 pilots – Hoang Cong and Nguyen Van Hung in 1973 and Truong Cong Thanh in 1974. By then the VPAF had

already suffered its final MiG loss of the war in air combat. On 12 January 1973, the 923rd's Luu Kim Ngo was on a training flight over Haiphong (US intelligence reports stated that the aircraft had been scrambled to locate and intercept a USAF C-130 Hercules flying over the Gulf of Tonkin) when he encountered the F-4B of VF-161's Lt Victor Kovaleski (and his RIO Lt J A Wise), embarked in *Midway*. Two Phantom IIs had been launched from CVA-41 when the MiG had been detected on radar. Ngo was quickly caught and shot down with a single AIM-9, the missile hitting the MiG-17's aft section. Ngo ejected but died shortly afterwards at Cat Ba.

Following the signing of the Paris Peace Accords, the 923rd FR relocated to Tho Xuan, where two of its MiG-17s were to be kept on constant combat standby. Only a few fighter sections remained to defend Haiphong at Kien An. MiG-17 training flights continued to be conducted by the 923rd FR at Kien An, Tho Xuan, Vinh and Dong Hoi airfields. The MiG-17 was retained in frontline service by the VPAF until the late 1970s, although by then the 923rd had relinquished its fighter interception duties to regiments equipped with the MiG-21. The unit's role was changed to ground attack and maritime strike. The surviving MiG-17s were eventually relegated to fighter training duties and the type was finally phased out of service in the early 1980s.

NORTH KOREAN MiG-17s

There was an intriguing postscript to the story of Vietnam War MiG-17 operations when it was admitted in 2001 that North Korean pilots had fought with the VPAF against the Americans. It had been suspected but not previously confirmed that a number of North Korean fighter pilots had been sent to Vietnam in 1967 and, it was claimed, shot down US aircraft. Vietnamese histories had previously referred to an unidentified regimental-sized unit known as 'Group Z' ('Doan Z').

The North Vietnamese and North Korean military leaderships had agreed in February 1967 to set up the unit, North Korea having undertaken to provide 'volunteer' pilots to serve with MiG-17 and MiG-21 regiments. Its pilots flew most of their training sorties and combat missions from the 923rd FR's Kep base, with Noi Bai having been declared a reserve airfield. The North Korean pilots remained in Vietnam until the beginning of 1969.

In 2002, a Vietnamese newspaper reported that the bodies of 14 North Korean air force personnel killed during the war and buried in Vietnam had been disinterred and repatriated. It was subsequently claimed by a retired Vietnamese general that 87 North Koreans had served in the VPAF between 1967 and early 1969, during which time 14 pilots had been lost and 26 US aircraft claimed to have been shot down. Official Vietnamese sources, however, mention only four victory claims, two of which are not confirmed by US sources.

North Korean MiG-17 pilots rush out to the flightline at Kep to congratulate their returning brethren following a successful mission in 1967. The 80+ volunteers that saw combat during the Vietnam conflict were required to wear North Vietnamese uniforms and flew alongside VPAF pilots during their two years in action (*via István Toperczer*)





CHAPTER FIVE

THE 'WHITE BANDITS'

Using a scale model, a squadron CO demonstrates dogfight manoeuvres to MiG-19 pilots. The 925th FR was established in February 1969 using Chinese-built Shenyang J-6 (MiG-19S) equipment and moved from Kep to Yen Bai in September 1969 (*VPAF Museum, Hanoi*)

To NATO bureaucrats the Soviets' first supersonic fighter, the MiG-19, was known by its official reporting name of 'Farmer'. To the Chinese, who built the aircraft under licence, it was the Shenyang J-6. But the American crews who encountered it over Vietnam had a much more colourful name for it. They called the jet the 'White Bandit'. Although the fighter's frontline career with Soviet forces was relatively brief, the same aircraft built in China had a much longer life, including service with the VPAF. It will, however, be referred to in this narrative as the MiG-19.

The story of the fighter's service with the VPAF started in September 1965, when a group of 80 personnel, including student pilots and technicians, went to China to receive training on it. More cadets arrived the following year, and after initial theoretical instruction, flying training began on Nanchang CJ-6 (Yak-18) and Shenyang JJ-2 (MiG-15UTI) aircraft prior to students progressing to the MiG-19. Conversion onto the aircraft proved to be a long process that was not completed until January 1969, with personnel being sent back to Kep the following month. By then the North Vietnamese MoD had ordered that a new unit be established to operate the MiG-19. Le Quang Trung was appointed CO of the 925th FR (Trung Doan Khong Quan Tiem Kich 925), with Mai Duc Toai as his deputy. Key officers were seconded from the 923rd FR while the new unit's personnel completed their training in China. By the time of the move to Kep the 925th had 37 pilots qualified to fly 36 MiG-19s and four MiG-15UTIs.

The bulk of the 925th's establishment had been drawn from the ranks of Soviet-trained MiG-21 pilots and those MiG-17 pilots that had received tuition in North Vietnam with the 910th TR. They were able to train together, flying in groups of four, eight and 12 aircraft both during the day and at night. By April, the 925th had nine MiG-19 and four MiG-17 pilots qualified to fly combat missions, but the level of combat experience varied considerably. Pilots returning from China had nearly 200 hours of flying time in their logbooks and were able to fly operationally from the start.

Although the MiG-19 was capable of flying at supersonic speeds, its two engines meant the jet had a greater thirst for fuel and a shorter range than the MiG-17. As a result, the aircraft were unable to mount combat air patrols and could only be deployed from the ground after a scramble order had been given. Despite its higher performance, the aircraft had good horizontal manoeuvrability, even at altitudes between 2000-4000 m.

It was initially armed with three 30 mm cannon and was not equipped to launch air-to-air missiles until 1974. This serious deficiency meant pilots could only make close-range attacks, increasing the risk of them being shot down. Yet when they approached enemy aircraft at high speed to reduce the risk of counter-attack, pilots found it more difficult to hit their target. Such tactics effectively prevented the fighter's firepower from being fully exploited.

In September 1969, the 925th FR, with its mixed complement of MiG-19s and MiG-17s, transferred from Kep to Yen Bai. Its mission was to defend Vietnam's northwestern airspace. Facilities at Yen Bai, however, were fairly basic. It had only one runway and electric power came from generators, but ground personnel eventually adapted to the new base. Nevertheless, fuel shortages and a high hardware attrition rate caused by humid conditions, poor maintenance and inadequate logistical support initially hampered the MiG-19s' serviceability. Indeed, most training operations were undertaken in MiG-17s, with the supersonic fighters being used for combat proficiency. From late 1969 to early 1970, the ground control section moved from Kep to the unit's new base.

During this period the 925th lost three of its pilots. On 13 September 1969, former MiG-17 pilot Duong Trung Tan took off in a MiG-19 and inexplicably crashed a short while later near Kep. On 6 April 1970, Bui Dinh Doan and MiG-17 ace Le Quang Trung, both of whom had been transferred in from the 923rd FR, died following a mid-air collision during a training flight. Trung had scored five aerial victories while flying the MiG-17 in 1966-67. In 1969 he had been appointed CO of the 925th FR and commenced conversion onto the MiG-19. However, his command duties restricted his training time, and he had still to become fully proficient in the new aircraft when he took off from Yen Bai in bad weather on what proved to be his final flight. Trung's death was not entirely unexpected by his fellow pilots, who, although rating him as a competent aviator, believed that ideology was no substitute for flying 'by the book'.

COMBAT

On 18 December 1971, four pairs of 925th FR MiG-19s, together with five flights of MiG-21s from the 921st FR, were scrambled to intercept enemy aircraft that had penetrated Vietnamese airspace. Their movements were



MiG-17 ace Le Quang Trung transferred to the 925th FR in 1969 as the regimental commander, commencing his conversion onto the MiG-19 shortly thereafter (VPAF Museum, Hanoi)

coordinated with ADF SAM units. The MiG-21s engaged USAF F-4D Phantom IIs and claimed to have shot down three, but one pilot, Nguyen Van Khanh, flew into the SAM unit's kill zone and was hit by an SA-2 over Thai Nguyen. None of the MiG-19 pilots encountered enemy aircraft.

Another VPAF fighter was lost in a so-called 'friendly fire' incident on 19 January 1972. That afternoon, MiG-19s and MiG-21s took off from Yen Bai and Noi Bai. The MiG-19 pair of Pham Ngoc Tam and Nguyen Tu Dung flew a holding pattern over Yen Bai, while the MiG-21s of ace Nguyen Duc Soat and Ha Vinh Thanh headed for Thanh Son-Phu Tho. At 1448 hrs, a radar station detected a target approaching from Nghia Lo. When the VPAF central command post asked the 925th FR's ground control for the location of its MiG-19s, the reply came that the aircraft were still orbiting Yen Bai. The MiG-21s were duly directed to intercept the intruders.

Soat sighted two light-coloured aircraft which he did not identify as F-4s. 'Are you sure these are not friendly aircraft?' he asked central command, which insisted they were not. Soat, therefore, fired an R-3S missile from a range of 1500 m, setting the target aircraft on fire. But then he saw that it was a MiG-19 and immediately broke off the attack. Nguyen Tu Dung was forced to eject from his fighter and made a safe landing. Post-incident investigation revealed that the 925th FR's ground control post had made a mistake. VPAF HQ command had ordered the MiG-19s to remain over Yen Bai but the regimental command post had instructed the aircraft to head for Nghia Lo-Van Yen, and not informed VPAF HQ.

By the spring of 1972, the MiG-19 force had matured into an effective element of the VPAF's air defence system. The 925th FR was tasked with defending North Vietnam's western and northwestern airspace. As Yen Bai was sustaining frequent American attacks, the aircraft based there were concealed with camouflage netting and hidden in shelters built from tree leaves and bamboo. Later, earth revetments were built and bunkers able to accommodate 60 aircraft were tunnelled into nearby mountains. They were linked to the base by taxiways.

In the early spring, President Richard Nixon ordered a series of bombing offensives on a scale considerably larger than those undertaken during *Rolling Thunder*. As previously noted, Operation *Linebacker* began on 8 May. VPAF HQ responded by ordering the 925th FR to put up round-the-clock combat air patrols over Yen Bai to defend the nearby Thac Ba hydroelectric power station. The 921st FR was ordered to assist with decoy missions. The plan was for the 925th to put up two flights of MiGs at the opposite ends of Yen Bai. The northerly No 1 flight comprised four jets flown by Nguyen Ngoc Tiep, Nguyen Duc Tiem, Nguyen Hong Son 'A' and Nguyen Hung Son 'B'. No 2 flight, consisting of Pham Ngoc Tam, Pham Hong Son 'C', Phung Van Quang and Nguyen Manh Tung, patrolled the south. Nguyen Hung Son 'B' recalled;

'On 8 May radar units detected four aircraft approaching Yen Bai at an altitude of 5000 m, 35 km southwest of Moc Chau. Two MiG-21s from the 921st FR took off at 0840 hrs and headed for Tuyen Quang, while our flight of four MiG-19s took off at 0847 hrs. We broke through the cloud between 1000-1200 m and turned left. When we reached 4000 m at 0852 hrs Son "A" spotted the American aircraft 30 degrees off to

his right some six kilometres away at an altitude of 4000 m. Son "A" reported their position to the MiG-21s. Nguyen Ngoc Tiep reported that he could see four F-4s. The American aircraft also sighted our MiG-19s and launched AAMs, which missed their targets.

'Our flight leader, Tiep, ordered everyone to attack. In response to our approach, the F-4s split into pairs. Tiep and Tiem followed the left-hand pair, while Son "A" and I went after the right-hand one. As Tiem followed the F-4 he noticed that another Phantom II flight had fired two missiles at him. He was able to avoid them with hard manoeuvring, after which he turned round. Tiep continued his pursuit of the F-4, which descended to 1500 m and tried to escape with a left-hand turn. Tiep increased speed and opened fire with his cannon. He missed his target, which flew into cloud.

'Tiep banked to the right and noticed two F-4s at 2000 m. As he chased after them, one of the Phantom IIs tried to escape into cloud but Tiep again fired his cannon. This time he scored hits and the F-4 crashed. Tiem, meanwhile, had returned to cover our flight leader, only to find himself again coming under attack. Tiem counterattacked, but because he had not jettisoned his external fuel tanks his aircraft was continually yawing. This prevented him from aiming precisely and he was eventually ordered to land.

'The F-4 that Son "A" and I were chasing descended rapidly to 1500 m. Son "A" fired his cannon but without success. The American jet climbed to 2000 m. Son "A" continued following it and fired again, but scored no hits before the Phantom II disappeared into cloud. I did not receive an order to jettison my external fuel tanks, but when I saw that Son "A" had done so I operated the brake 'chute release by mistake. It deployed and was instantly ripped away. I managed to jettison the tank, but then saw an AAM heading for my aircraft. I avoided it by going into a rapid dive.

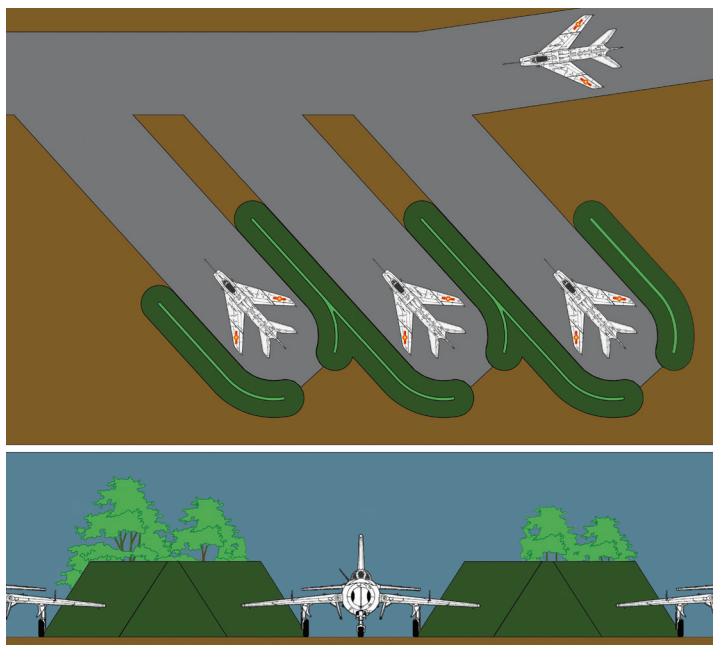
'The pursuing F-4 followed, and because of his greater speed he soon overran me, so I in turn became the attacker. I opened fire on the Phantom II at an altitude of 1200 m but without success. The F-4 flew into a cloud but I pressed on with my attack and, when it descended through 500 m I fired again. This time I noticed flames coming from the rear of the Phantom II, but was forced to break off the engagement as we were fast approaching a mountain. I landed safely at Yen Bai.

'Although having only 1100 litres of fuel left, Tiep remained airborne until two other MiG-19s took off to take over from him. Command ordered Pham Ngoc Tam and Pham Hung Son "C" to provide cover while Phung Van Quang and Nguyen Manh Tung stayed on standby. All our MiG-19s were safely back at base by 0916 hrs.'

The encounter described by Nguyen Hung Son 'B' was the first dogfight involving the MiG-19. It also resulted in the first victories to be claimed by the 925th FR over its home base. USAF records, however, did not confirm the kills. Conversely, the MiG-19 credited to Maj Barton Crews (and WSO Capt K W Jones) in an F-4D from the 13th TFS/432nd TRW cannot be matched with any losses suffered by the VPAF that day.



On 8 May 1972 USAF F-4Ds encountered MiG-19s over Yen Bai for the first time. Nguyen Ngoc Tiep (seen here) and Nguyen Hung Son 'B' were each officially credited with shooting down a Phantom II, although no such losses were recorded by the USAF (Courtesy of Nguyen Hung Son 'B')



Complex earth revetments were built at opposite ends of Yen Bai's runway to protect the MiG-19 fighters based there. The 925th FR maintained two flights on combat standby duty. No 1 flight had four MiG-19s at the northern end, while No 2 had another four MiG-19s ready to take off at the southern end (*István Tóperczén*)

The North Vietnamese continuously analysed enemy tactics using data from observation or acquired during the interrogation of captured American pilots. It was clear that US fighters were avoiding turning with the agile MiG-17s and MiG-19s, and that they placed greater emphasis on climbing or diving. Their aircraft entered the combat area with the leader and wingman well spaced, as such a formation required less concentration when it came to maintaining position and allowed crews to devote more time to spotting hard-to-see MiGs trying to bounce them. When facing a lone MiG, US fighter crews would work together to ensure a kill, and when meeting a pair of MiGs they would

invariably go after the wingman. If encountering a larger formation, they would separate and engage individual MiGs in pairs.

On 9 May, the Americans mined the waters of Haiphong and other ports. They also mounted more than 200 strikes on the airfields at Vinh, Tho Xuan, Hoa Lac, Yen Bai and Na San, as well as attacking major roads in the Hanoi and Haiphong areas. The VPAF anticipated them, however, and concentrated the strength of their four fighter regiments on a counter-attack.

The following day, US aircraft raided Haiphong, Bac Ninh, Pha Lai, Son Dong and Luc Ngan, in Ha Bac Province. They also attacked MiG-21s operating over Tu Ky, Ninh Giang, in Hai Hung Province, and targets north of Hanoi, while a group of fighters kept a close watch on the bases at Noi Bai, Hoa Lac and Kep. From 0914 hrs to 0935 hrs radar detected enemy aircraft passing Suoi Rut and Hoi Xuan, but it could not hold them under surveillance. 925th FR CO Ho Van Quy and his deputy Mai Duc Toai believed that the attackers were heading for Yen Bai and Thac Ba, and they decided to order a MiG-19 flight (comprising Pham Ngoc Tam, Pham Hung Son 'C', Nguyen Van Phuc and Le Duc Oanh) to take off and head south of their base.

Meanwhile, VPAF HQ was closely monitoring the flight paths of enemy aircraft coming from Moc Chau and heading for Nghia Lo, as well as those approaching from Sam Neua on the Vietnam-Laos border. Two 921st FR MiG-21s scrambled from Noi Bai at 0944 hrs, heading for Tuyen Quang to act as decoys, while the 925th FR's No 1 flight of MiG-19s was ordered to take off from Yen Bai. Luu Van Cong and Trieu Si Viet expertly guided them into an orbit overhead the base at an altitude of 3000 m. After circling the airfield three times, and with the command post's assistance, Pham Ngoc Tam detected F-4s six kilometres away flying at 1500 m. The Phantom II crews in turn spotted the MiG-19s, and soon both sides were fighting directly overhead the base. Pilot Phan Trong Van was in the tower directing the MiGs.

Pham Ngoc Tam and Pham Hung Son 'C' found themselves caught up in the battle from the start. They chased enemy fighters and fired their cannon but without scoring hits. Seeing an F-4 turning from north to south, Nguyen Van Phuc dove after it and in the 16th minute of the dogfight fired three short cannon bursts at his quarry. The shells stitched the fuselage of the F-4D flown by triple MiG killer Maj Robert Lodge (and WSO Capt R C Locher) of the 555th TFS/432nd TRW – they had downed a MiG-21 just prior to being engaged by the MiG-19s. Phuc continued with the attack and fired again, the USAF jet breaking into two pieces at 0958 hrs. Lodge was killed but Locher survived.

Covered by his wingman, Le Duc Oanh, Phuc transferred his attentions to another Phantom II, but noticed that they were now being pursued by a third F-4. The range was so close that Phuc had to break off by pulling more than 10g. He opened fire three times but missed. In the meantime, Oanh was hit by an air-to-air missile and forced to eject. He subsequently died of injuries sustained egressing from his MiG. Oanh's victor has never been identified, for only MiG-17s and MiG-21s were claimed by USAF and US Navy Phantom IIs on 10 May.

The encounter lasted 20 minutes, and by this time the MiGs were running low on fuel. In fact, Son 'C' had run out completely and made his landing approach at high speed from an altitude of 1600 m. The aircraft was badly damaged when it overran the runway at Yen Bai, but the pilot was safe. Pham Ngoc Tam and Nguyen Van Phuc were in the process of landing, with their gear extended, when they came under attack from yet more F-4s. Phuc retracted his undercarriage and covered Tam while he landed, before getting down safely himself.

Regimental command ordered Hoang Cao Bong, Pham Cao Ha, Nguyen Van Cuong and Le Van Tuong of No 2 flight to return to the patrol area over the base to relieve No 1 flight. They arrived just in time because the enemy appeared over Yen Bai as No 2 flight commenced orbiting the airfield. Tuong selected his target and fired two bursts, setting the left wing of the F-4E flown by Capt Jeffrey Harris (and WSO Capt D E Wilkinson) ablaze. Both aircrew, from the 58th TFS/432nd TRW, were killed. Cuong also attacked an F-4, firing three bursts at it, but he failed to score any hits. The battle involving No 2 flight lasted 18 minutes, and even though US fighters were still flying over the base, the MiG-19s were now so low on fuel that their pilots had to land. Bong got down safely but Cuong overran the runway, although there was no injury to the pilot or damage to the aircraft.

Tuong only landed when he had completely exhausted his fuel, and he too ran off the end of the runway after making a steep approach following a sharp descent from 1400 m. Having landed at too great a speed, Tuong's jet turned over upon leaving the runway and exploded. He was killed instantly. Shortly thereafter Pham Cao Ha radioed that American fighters were on his tail as he was preparing to land. Fortunately for him, his pursuers broke off their attack when he turned to line up with the runway, Ha getting down safely.

The battle was over by 1047 hrs. The North Vietnamese had put up two flights of eight fighters from the 925th. Seven of them had fired 1050 rounds of 30 mm ammunition and had downed two USAF F-4



Nguyen Hong Son 'A', Nguyen Thang Long, Pham Ngoc Tam and Vu Viet Tan prepare for combat on 18 May 1972. Pham Ngoc Tam would shoot down the F-4D of 1Lt W D Ratzel and J B Bednarek from the 421st TFS/366th TFW, but he and Nguyen Thang Long were shot down later that same day by two F-4Bs from VF-161. Both MiG pilots ejected and landed safely (*Nguyen Hong Son 'A'*)

Phantom IIs. Only one VPAF aircraft was shot down in the battle but two pilots were lost and two aircraft damaged in landing accidents.

On 11 May, four MiG-19s flown by Nguyen Ngoc Tiep, Nguyen Manh Tung, Pham Cao Ha and Phung Van Quang, as well as a flight of four MiG-17s, engaged F-4s in an inconclusive dogfight. The following day, the VPAF ordered the 923rd, 925th and 927th FRs to have four MiG-17s, four MiG-19s and six MiG-21s on standby. The

925th FR was told to defend Yen Bai against low-flying enemy bombers. Pham Ngoc Tam and Nguyen Thang Long orbited over the northern end of the runway while Nguyen Hong Son 'A' and Vu Viet Tan were at the southern end. Nguyen Hong Son 'A' recalled;

'Before 1100 hrs the radar station detected a group of enemy aircraft south of Yen Chau. Our regimental command post ordered Tam and Long to take off and fly a holding pattern over Yen Bai. After two minutes, Tan and I took off and waited over the northern end of the base at an altitude of 800 m. The enemy aircraft were just west of the airfield when the VPAF command post decided that we should not engage them. Tam and Long were ordered to land at Noi Bai. We were turning toward Vinh Phu when ground control visually spotted a flight of F-4s heading for the base at low level.

'We jettisoned our external fuel tanks and turned towards the F-4s. Tan pursued one, fired at it but missed. Three F-4s were behind him and fired missiles. He immediately took evasive action to avoid them. We continued in pursuit as the Phantom IIs headed west. My wingman and I broke off and landed safely at Noi Bai at 1130 hrs.'

The aerial battles increased in intensity during the second half of May. Yen Bai air base was under close American surveillance, and as a result elements of the 925th FR had to be transferred to Gia Lam. The regimental war diary records some victories but many losses – four in May alone. On the 18th, VPAF HQ redeployed the combat units so that four MiG-19s were based at Noi Bai alongside the MiG-21s. The 925th FR began to fight as a series of mobile units flying from several airfields, while also maintaining a presence at Yen Bai. The MiG-19s of Pham Ngoc Tam, Nguyen Thang Long, Nguyen Hong Son 'A' and Vu Viet Tan took off from Noi Bai on 18 May, and at 1151 hrs the unit CO, Ho Van Quy, decided to intercept enemy aircraft targeting Bac Giang. Nguyen Hong Son 'A' recalls the way the day's battle unfolded;

'Ground control guided our MiG-19s to Pha Lai-Luc Nam. During our 80-degree turn-back we detected the enemy to our left at a distance of four kilometres, flying at 2000 m. Some minutes later, Tam attacked, firing three bursts to shoot down a Phantom II [the F-4D of 1Lt W D Ratzel and J B Bednarek (WSO) from the 421st TFS/366th TFW]. We all saw the F-4 crew eject and their parachutes open [neither crewman survived, however]. Tan and I flew cover above the MiGs of Tam and Long, but the range was too great so we didn't have a chance to fire our guns. After we broke off, command ordered us to fly over Kep to cover

MiG-17s and then turn back to Noi Bai, where our flight landed safely.'

That afternoon two F-4Bs from VF-161 were flying from *Midway* as part of a MiGCAP for a strike on an oil storage depot near Haiphong when they shot down the MiG-19s of Pham Ngoc Tam and Nguyen Thang Long. Both pilots were able to eject from their stricken fighters and land safely. While MiG-17s and MiG-19s were breaking off the combat, enemy aircraft still posed a threat and the VPAF HQ command post ordered the Noi Bai-based MiG-21s to cover them. According to VPAF records, the flight leader shot down an F-4.

US Navy aircraft attacked again on the 23rd when they hit the Haiphong-Kien An area, Thai Binh and Highway 1 to the south from Phu Ly. VPAF command deployed another MiG-21 pair from the 927th FR at Gia Lam to support the 925th's MiG-19s and the 923rd's MiG-17s. The MiG-19s of Hoang Cao Bong, Vu Chinh Nghi, Nguyen Hong Son 'A' and Pham Hung Son 'C' took off to intercept the intruders, but when the enemy turned back they landed at Gia Lam. At 1150 hrs radar detected several enemy flights east of Thanh Hoa, heading north. The local VPAF CO, former 921st FR MiG-17 pilot Tran Hanh, put the combat units at Gia Lam, Noi Bai and Kep on immediate standby. Three minutes later some of the enemy aircraft headed for Nho Quan, while others flew towards Hung Yen and Phu Ly.

At Gia Lam two MiG-21s had their engines started, while the MiG-19 flight awaited further orders. Hoang Cao Bong taxied onto the runway, but Vu Chinh Nghi had to re-start his engine, causing the take-off to be delayed. At 1210 hrs, while the MiG-21 pair were conferring with the MiG-19 pilots, they were ordered to stay on standby. At 1337 hrs, the 925th FR CO Ho Van Quy decided to order Bong, Nghi, Son 'A' and Son 'C' to start their engines once again and take off. They then checked in with the local ground control officer, who gave them a course to fly east and back to Kep. After passing Pha Lai, the flight divided into two pairs and they crossed each other overhead Kep. The aerial battle that ensued over the airfield was described by Nguyen Hong Son 'A';

'We headed for Kep and our flight split into two pairs. Bong and I switched to the ground control station's radio frequency. Son "C" followed later but Nghi stayed on the Gia Lam tower frequency. At Kep the command post ordered us into the holding area at an altitude of 500 m. Son "C" and I sighted two F-4s east of the base and to our right. They fired missiles at our MiGs. At the command post Nguyen Van Luc passed manoeuvring instructions and kept us informed of the enemy's movements. Bong turned hard to avoid the missiles. Ground control ordered Nghi to do the same but his MiG-19 was trailing smoke. The ground control officer shouted "Eject, eject, eject!", but Nghi had not changed his radio frequency in time so he was not receiving GCI instructions. His MiG was hit by the F-4's missile. The Phantom II fired two more at him but missed. I switched back to the original frequency and ordered Nghi to eject. The MiG-19 became uncontrollable and he got out at an altitude of 1000 m. He landed on the western side of Kep.



Nguyen Hong Son 'A' was responsible for the 3600th enemy aircraft (an F-4) shot down over North Vietnam on 23 May 1972, although its demise was not confirmed by US records. Because of their similar names, the three best-known MiG-19 pilots of the Vietnam War have been historically identified as Son 'A', Son 'B' and Son 'C' (VPAF Museum, Hanoi)

'After hearing ground control's warning, Bong got behind two F-4s. When the range was right, he fired three bursts from his cannon and his shells hit the tail section of one of the F-4s. After some high-g manoeuvres, I spotted two F-4s and turned hard to attack. I fired three bursts and one of the Phantom IIs dove to the ground east of Kep. Son "C" stayed with me, and when he also saw the F-4s, he too turned in to attack them. Son "C" fired a long burst and his shells hit the enemy aircraft. Our target F-4 was trailing smoke and turning east. Son "C" shouted, "He's burning!"

At 1357 hrs, the flight was ordered to land. The MiG-19s flew home at an altitude of 300 m and landed at Gia Lam ten minutes later. The Phantom II claimed by Son 'A' and Son 'C' was not confirmed by US records. Vu Chinh Nghi's MiG-19 was hit by a Sparrow missile fired from the F-4E flown by Lt Col Lyle Beckers (with WSO Capt J F Howe) of the 35th TFS/366th TFW. Some Vietnamese records state that Nghi had actually fallen victim to ADF SAMs.

There were other friendly fire incidents involving MiG-19s during this period, resulting in the death of a pilot. Simultaneous operations within the same zone required positive identification of tracked aircraft. In many instances, however, North Vietnamese air defence units were using old Chinese-made Kremnij-1 radar units, while the MiG-19 regiment and SAM batteries relied on the later Russian-built Kremnij-2. The two systems routinely proved their lack of compatibility in the heat of battle.

On 2 June four MiG-19s from Gia Lam were involved in a battle with F-4s over Kep. When the melee drifted over Bac Giang, the MiG-19 flight leader was shot down in error by a SAM unit, killing Phan Trong Van. According to USAF records, Maj Philip Handley (and WSO 1Lt J J Smallwood) of the 58th TFS/432nd TRW were credited with downing the MiG with cannon fire from their F-4E.

A heavy USAF presence in the Yen Bai area prevented VPAF air operations on the 11th, so some of the 925th's MiG-19s were transferred to Gia Lam instead. The VPAF command post ordered four MiG-19s to take off from the latter base and defend targets in the Hanoi area. Nguyen Hong Son 'A', Pham Hung Son 'C', Nguyen Van Phuc and Nguyen Hung Son 'B' were on standby, and at 1010 hrs they took off from Gia Lam and climbed to 1000 m. When the flight was passing Van Dien the pilots sighted enemy aircraft 30 km ahead.

Two F-4Bs from VF-51, embarked in *Coral Sea*, screamed over the Red River at very low altitude to intercept the four MiG-19s. When the Phantom II pilots (Cdr Foster Teague and Lt Winston Copeland, with Lt R M Howell and Lt D R Bouchoux as their respective RIOs) spotted them they immediately pulled up and fired their missiles. At that moment Son 'A' saw a line of smoke headed towards the MiGs. He then sighted the Phantom IIs ahead and to his right. He made a hard turn and, with his wingman, began a pursuit of the F-4s, but they escaped by increasing speed. Son 'A' called Phuc and Son 'B' but received no reply. The reason soon became clear – they had been shot down by the F-4Bs (whose crews claimed they had engaged MiG-17s). Nguyen Van Phuc was killed but Nguyen Hung Son 'B' ejected and landed safely.

On the morning of the 27th four MiG-19s and two MiG-21s were scrambled from Gia Lam to patrol the Nha Nam-Tuyen Quang area. Later,

Nguyen Hung Son 'B' was shot down over the Red River on 11 June 1972 by the VF-51 F-4B flown by Lts Winston Copeland and Donald Bouchoux, who claimed that their victim was actually flying a MiG-17. Son 'B' ejected from his crippled aircraft and landed safely (VPAF Museum, Tan Son Nhut)



when they were returning to land, the MiG-19 pilots realised they were being tracked by F-4s. Pham Ngoc Tam's MiG-19 was shot down, the pilot being killed when he failed to eject. The surviving pilots landed safely back at Gia Lam. Neither the USAF nor the US Navy claimed any aerial victories on that day.

During July and August the 925th FR failed to score any aerial victories, but conversely no MiG-19s were lost either. The action heated up again in September and October, however, when pilots claimed two F-105s and an F-4 shot down. The cost of this success though was three MiG-19 pilots killed.

On 2 September, the 925th launched a pair of MiG-19s from Noi Bai. Their pilots were Hoang Cao Bong and Phung Van Quang, and each aircraft was armed with the standard trio of 30 mm cannon plus two A-72 missile launchers as a test of the installation. The 'A-72' designation was applied to the Soviet-made SA-7 'Grail' (9K32 Strela 2) man-portable air-defence system. At 1127 hrs North Vietnamese radar detected 12 enemy aircraft flying from Sam Neua in the direction of Moc Chau. After they had taken off, the two MiG-19 pilots flew on a heading of 100 degrees until they turned left upon reaching Pha Lai. The enemy aircraft headed straight for Noi Bai, so the MiG-19s turned left again, this time towards Vinh Phu. At 1138 hrs, when they were just east of the airfield, the command post alerted the MiG-19 pilots to the targets' location.

Quang spotted two F-105s to his left, but at the same time Bong sighted two F-4s heading straight for them from the opposite direction. The MiGs turned in to attack, with Bong heading for the Phantom IIs while his wingman took on the Thunderchiefs. Bong turned hard left, putting him on the tail of an F-4. Firing three bursts, he radioed GCI moments later to confirm that the Phantom II had burst into flames and crashed into Tam Dao hill (USAF loss records do not support Bong's claim). At 1144 hrs, whilst Bong was still reporting his victory, his fighter was hit by enemy missiles and nosed over into an uncontrollable dive. He ejected and landed safely in the village of Phuc Yen. Bong's MiG-19 had been shot down by an F-4E of the 34th TFS/388th TFW flown by Maj Jon Lucas (with WSO 1Lt D C Malloy of the 35th TFS).

Meanwhile, Phung Van Quang turned hard to chase the F-105s, firing one of his A-72 missiles. The range was too great, however, the weapon passing harmlessly behind the target. Unperturbed, he continued his pursuit and fired his cannon in two bursts from a range of 600 m. Again, there was no result, and he also missed with his second A-72 missile. Quang immediately closed on the target and fired another long burst. This time the 30 mm shells hit the F-105 and it dived towards the ground. Quang's victim was not, however, confirmed by US records. After calling his leader and receiving no reply, Quang was ordered by ground command to head for Kep, where he landed at 1158 hrs.

Two 925th FR MiG-19s were on standby at Gia Lam on 9 September when USAF bombers approached from the west to attack Highway 1 North. They were first engaged by MiG-21s, but at 1040 hrs VPAF HQ ordered the MiG-19s of Nguyen Tu Dung and Pham Cao Ha to take off and intercept the enemy jets on a heading of 110 degrees. Two minutes later, the two fighters turned right when the enemy aircraft were 15 km away to their left. When the MiG pilots returned to orbit the airfield, four F-4s were

sighted to their right flying at 1500 m. As Dung turned in to engage them, the USAF Phantom IIs turned to meet the MiGs head-on at lower altitude. When the VPAF fighters passed over them, the F-4s made a hard turning climb to get in behind the MiGs. The USAF jets then split into two pairs.

At this point Dung decided to chase the one to his right, but the Phantom IIs were out of cannon range. He turned back but could not see Pham Cao Ha's MiG. The command post was also having no luck contacting him via radio. Ha's aircraft had in fact been hit by a Sidewinder missile while trying to cover Dung, his jet shaking violently and becoming uncontrollable after it was struck. The missile, fired by Capt John Madden (with ace WSO Capt Charles DeBellevue) from an F-4D of the 555th TFS/432nd TRW, hit the MiG's tail and Ha was forced to eject. He landed safely in the village of Phu Lo, near Hanoi. Nguyen Tu Dung returned to Gia Lam and landed at 1054 hrs. Madden and DeBellevue were actually credited with two MiG-19 kills following this mission.

FINAL BATTLE

The final aerial engagement for the MiG-19s came on 6 October, when Nguyen Hung Viet became the last 925th FR pilot to be killed in action during the war. VPAF HQ had ordered the 925th FR to have two pairs of jets (manned by Nguyen Hong Son 'A', Nguyen Hung Viet, Nguyen Van Cuong and Vu Viet Tan) on standby to scramble from Noi Bai. At 0850 hrs the command post ordered Son 'A' and Viet to get airborne after radar had detected an enemy formation over southern Son La heading for Bac Yen. When the MiG pilots reached Pha Lai, they turned onto a heading of 270 degrees. At the same time, the USAF bomber formation had reached an area north of Thai Nguyen. The MiG-19s climbed to an altitude of 4500 m and then turned onto a heading of 330 degrees. Nguyen Hong Son 'A' spotted F-4s ahead, and he later reported;

'I gave the order to jettison external fuel tanks and attack. While Viet covered me, I chased the two enemy aircraft on the left. At that moment Viet spotted four aircraft behind us and called out a warning to me. I continued to pursue the two enemy aircraft. I fired one burst from my guns but my shells missed, so I made a hard left turn and flew on a heading of 180 degrees to break off the engagement. I called my wingman but he didn't answer, and I returned to our airfield at Gia Lam alone.'

Nguyen Hung Viet, meanwhile, had made a sharp turn to attack, with the result that four aircraft were involved in a high-speed chase along a valley. Viet pursued the F-4E of Capt Charles Barton (and WSO 1Lt G D Watson) into a vertical dive, firing three bursts from his guns. The F-4E of Maj Gordon Clouser (and WSO 1Lt C H Brunson) followed his MiG-19, with another MiG

J-6 'Red 6058' has been on display at the VPAF Museum in Hanoi for many years. It served with the 925th FR at Yen Bai, having been delivered to the regiment as part of the second batch of 'Farmer-Cs' supplied to the VPAF by China in 1974 (István Toperczer)



behind this Phantom II. At an altitude of just 100 m, Barton and Watson pulled out of their dive and Viet's MiG-19 hit the ground near the hamlet of Khuon Nang, in Thai Nguyen Province. Due to this manoeuvre, the USAF pilots from the 388th TFW's 34th and 35th TFSs were each credited with a half share in a manoeuvre kill.

With only a handful of the 54 MiG-19s supplied in 1968-69 still operational by the autumn of 1972, VPAF operations with the jet quietly fizzled out.

At the end of 1973 the 925th FR remained at Yen Bai, but the base at Kien An became the regimental headquarters of the 921st and 925th. The latter unit at last received more MiG-19s in 1974 to facilitate training and allow two aircraft to be kept on constant standby at Yen Bai to defend Hanoi. During April 1974, 24 new J-6s and four Shenyang JJ-5s (Chinese-built two-seaters) arrived at Yen Bai in three batches from Wuxu airfield near Nanning, in China's Guangxi Province.

To improve the MiG-19's firepower, Vietnamese engineers and technicians devised a plan to mount R-3S (K-13 'Atoll') AAMs on the fighter. VPAF HQ approved it on 14 March 1974 but the technical difficulties involved prevented MiG-19 pilots from using the weapon in combat. The first K-13s were eventually installed on MiG-19 No 6045.

On 20 January 1975, the VPAF HQ ordered eight overhauled MiG-19s to be transferred from Nanning to Vietnam's Noi Bai and Gia Lam airfields. By May it was becoming clear that military activities were coming to an end even on the frontlines of South Vietnam. The fighters were now carrying training rounds only, but some aircraft were still being lost in accidents. For example, on one occasion two MiG-19 pilots practising for a celebratory air display collided over Noi Bai.

There was a significant event on 25 December 1975 when the 370th Hai Van Air Division (Su Doan Khong Quan 370) was established. It incorporated the 925th FR and MiG-19s from the 371st Air Division, a flight of ex-South Vietnamese air force Cessna U-17s and South Vietnamese air control units. The 370th continued with its handful of surviving 'Farmers', now relegated to advanced training duties, until the end of the decade. By then the 'glory days' of the 'White Bandits' seemed a long time ago.

THE RECKONING

During the Vietnam War, the VPAF operated a number of different MiG fighter types including the MiG-17F and PF (J-5), the MiG-19 (J-6) and the MiG-21F-13, PF, PFM and MF. Their pilots claimed to have shot down 266 US aircraft, while US forces claimed to have shot down or destroyed 204 MiGs, plus six other types, in return. Of the American total, 196 were confirmed kills and comprised 100 MiG-17s, ten MiG-19s and 86 MiG-21s. Against this, the VPAF admits that it lost 154 MiGs to all causes. Some 131 of these fell in aerial combat – 63 MiG-17s, eight MiG-19s and 60 MiG-21s.



Besides the MiG-15UTI, VPAF pilots also flew the JJ-5, this Chinese-built two-seat fighter-trainer being a development of the J-5. It featured the engine and fuselage of the latter machine and the two-seat cockpit of the MiG-15UTI. Four arrived from Nanning, China, in April 1974 to aid in the training of 925th FR pilots converting to the J-6 at Yen Bai (VPAF Museum, Tan Son Nhut)

APPENDICES

HIGH-SCORING MiG-17 PILOTS

Nguyen Van Bay (923rd FR) (officially credited with seven victories)

26/4/66 (MiG-17) – F-4C, damaged according to US records
 29/4/66 (MiG-17) – F-105D, 1Lt D W Bruch (KIA), loss attributed to AAA in US records
 29/6/66 (MiG-17) – F-105D, Capt M N Jones (PoW), loss attributed to AAA in US records
 5/9/66 (MiG-17) – F-8E, Capt W K Abbott (PoW)
 16/9/66 (MiG-17) – F-4C, Maj J L Robertson (KIA) and 1Lt H E Buchanan (PoW)
 21/1/67 (MiG-17) – F-105D, Capt W R Wyatt (rescued), loss attributed to AAA in US records
 24/4/67 (MiG-17) – F-4B, Lt Cdr C E Southwick and Ens J W Laing (both rescued), loss attributed to AAA in US records
 29/4/67 (MiG-17) – F-4C, 1Lt L H Torkleson (PoW) and 1Lt G J Pollin (KIA), loss attributed to AAA in US records

Note – On 6 October 1965 Bay's MiG-17 was damaged by the VF-51 F-4B of Lt Cdr D Macintyre and Lt(jg) A Johnson

Le Hai (923rd FR) (officially credited with six victories)

28/4/67 (MiG-17) – F-105, not confirmed by US records
 14/5/67 (MiG-17) – F-4 (shared), not confirmed by US sources
 19/11/67 (MiG-17) – F-4B, Lt(jg) J E Teague (KIA) and Lt(jg) T G Stier (PoW)
 14/6/68 (MiG-17) – F-4, not confirmed by US records
 29/7/68 (MiG-17) – F-8, not confirmed by US records
 3/8/69 (MiG-17) – Firebee drone
 6/3/72 (MiG-17) – F-4, not confirmed by US records

Luu Huy Chao (923rd FR) (officially credited with six victories)

17/4/66 (MiG-17) – C-47, not confirmed by US records
 26/4/66 (MiG-17) – F-4C, not confirmed by US records
 12/8/66 (MiG-17) – F-105D, Capt D J Allinson (KIA), loss attributed to AAA in US records
 21/9/66 (MiG-17) – F-4C (shared), Capt R G Kellems and 1Lt J W Thomas (both rescued)
 14/12/67 (MiG-17) – F-8 (shared), not confirmed by US records
 17/12/67 (MiG-17) – F-4D, Maj K R Fleenor and 1Lt T L Boyer (both PoWs)
 3/1/68 (MiG-17) – F-4 (shared), not confirmed by US records
 14/6/68 (MiG-17) – F-4B, not confirmed by US records
 29/7/68 (MiG-17) – F-8 (shared), not confirmed by US records

Note – On 3 January 1968, Chao's MiG-17 was damaged by the 435th TFS/8th TFW F-4D of Lt Col C K Squier and 1Lt M D Muldoon

Nguyen Nhat Chieu (921st FR) (officially credited with five victories)

20/9/65 (MiG-17) – F-4B, not confirmed by US records
 20/5/67 (MiG-21) – F-4C, Maj J L Van Loan and 1Lt J E Milligan (both PoWs)
 23/8/67 (MiG-21) – F-4D, Maj C R Tyler (PoW) and Capt R N Sittner (KIA)
 7/10/67 (MiG-21) – F-105F, Capt J D Howard and Capt G L Shamblee (both rescued)
 29/10/67 (MiG-21) – F-4, not confirmed by US records

Note – On 17 June 1965, Chieu was shot down by the VF-21 F-4B of Lt J E D Batson and Lt Cdr R B Doremus, ejecting safely from his MiG-17

Le Quang Trung (923rd and 925th FRs) (officially credited with five victories)

12/6/66 (MiG-17) – F-8, not confirmed by US records
 17/8/66 (MiG-17) – F-105F, Maj J W Brand and Maj D M Singer (both KIA), loss attributed to AAA in US records
 20/9/66 (MiG-17) – F-105, not confirmed by US records
 9/10/66 (MiG-17) – A-1H, not confirmed by US records
 4/12/66 (MiG-17) – F-105 (shared), not confirmed by US records
 25/4/67 (MiG-17) F-105, not confirmed by US records

Note – On 6 April 1970, Trung was killed while flying a MiG-19 on a training flight from Yen Bai

Nguyen Phi Hung (923rd FR) (officially credited with five victories)

7/10/67 (MiG-17) – F-4, not confirmed by US records
6/11/67 (MiG-17) – F-105, not confirmed by US records
19/11/67 (MiG-17) – F-4B, Lt Cdr C D Clower (PoW) and Lt(jg) W O Estes (KIA)
19/12/67 (MiG-17) – F-105, not confirmed by US records
9/7/68 (MiG-17) – F-8E, not confirmed by US records

Note – On 9 July 1968, Hung was shot down and killed by the VF-191 F-8E of Lt Cdr J B Nichols

Vo Van Man (923rd FR) (officially credited with five victories)

19/7/66 (MiG-17) – F-105D, 1Lt S W Diamond (KIA)
29/7/66 (MiG-17) – RC-47D (shared), Capt B Conklin and seven crew (KIA)
5/9/66 (MiG-17) – F-8E damaged, not confirmed by US records
21/9/66 (MiG-17) – F-4C, Capt R G Kellems and 1Lt J W Thomas (both rescued)
24/4/67 (MiG-17) – F-4C, Maj H L Knapp and 1Lt C D Austin (KIA), loss attributed to AAA in US records
14/5/67 (MiG-17) – F-4, not confirmed by US records

Note – On 21 September 1966, Man's MiG-17 was damaged by the 333rd TFS/355th TFW F-105D of 1Lt F A Wilson. On 14 May 1967, Man was killed when his MiG-17 was shot down by the 480th TFS/366th TFW F-4C of Maj S O Bakke and Capt R W Lambert

Phan Van Tuc (921st and 923rd FRs) (officially credited with four victories)

3/4/65 (MiG-17) – F-8E, not confirmed by US records
21/6/66 (MiG-17) – F-8E, Lt Cdr C Black (PoW)
29/6/66 (MiG-17) – F-105D, not confirmed by US records
19/4/67 (MiG-17) – F-105F (shared), Maj T M Madison and Maj T J Sterling (PoWs)

Note – On 31 December 1967, Tuc was killed in a flying accident in a MiG-17 during a training flight near Vinh Phuc

Hoang Van Ky (923rd FR) (officially credited with four victories)

20/9/66 (MiG-17) – F-105, not confirmed by US records
5/2/67 (MiG-17) – F-4, not confirmed by US records
25/4/67 (MiG-17) – F-105D (shared), 1Lt R L Weskamp (KIA), loss attributed to AAA in US records
4/5/67 (MiG-17) – F-4C, not confirmed by US records
12/5/67 (MiG-17) – F-4C, not confirmed by US records

Note – On 5 June 1967, Ky was shot down and killed by 480th TFS/366th TFW F-4C of Maj D K Priester and Capt J E Pankhurst

Bui Van Suu (923rd FR) (officially credited with four victories)

21/9/67 (MiG-17) – F-4B, not confirmed by US records
6/11/67 (MiG-17) – F-105, not confirmed by US records
17/12/67 (MiG-17) – F-4C, not confirmed by US records
3/1/68 (MiG-17) – F-4, not confirmed by US records

COLOUR PLATES

1

Shenyang J-5 (MiG-17 'Fresco-A') 2310 of Pham Ngoc Lan, 921st 'Sao Do' FR, Noi Bai, 3 April 1965

According to VPAF records, the first aerial victory scored by a North Vietnamese MiG-17 was achieved on 3 April 1965 over Thanh Hoa Province by Pham Ngoc Lan, who claimed to have shot down the F-8E of VF-211's Lt Cdr Spence in this very aircraft. The Crusader was in fact badly damaged, and Spence made an emergency landing at Da Nang.

2

Shenyang J-5 (MiG-17F 'Fresco-C') 2217 of Nguyen Nhat Chieu, 921st FR, Noi Bai, 20 September 1965

On 20 September 1965, Nguyen Nhat Chieu shot down a US Navy F-4B over Nha Ham, in Ha Bac province, according to VPAF records – there are matching losses in US Navy records. This was Chieu's first aerial victory, and he went on to become a respected MiG-21 ace.

3

MiG-17PF 'Fresco-D' 4726 of the 921st FR, Noi Bai, late 1965

The first MiG-17PF 'Fresco-Ds' arrived in North Vietnam from the Soviet Union at the end of 1965. The 921st FR's first nocturnal victory was credited to the unit on 3 February 1966 when, according to VPAF sources, Lam Van Lich shot down two A-1H Skyraiders over Cho Ben. Again, these claims do not tally with USAF loss records.

4

MiG-17F 'Fresco-C' 2047 of Vo Van Man, 923rd FR, Noi Bai, 29 July 1966

Vo Van Man was flying this MiG-17F on 29 July 1966 when he and Tran Huyen attacked an RC-47D Skytrain of the 606th Air Commando Squadron/634th Combat Support Group close to the Laos-Vietnam border. The fighter, which was eventually credited with seven kills, was later equipped with a drag 'chute and bomb pylons and, configured as a fighter-bomber, flown by Nguyen Van Bay 'B' in an attack on the cruiser USS *Oklahoma City* (CLG-5) on 19 April 1972.

5

MiG-17F 'Fresco-C' 2077 of Phan Van Tuc, 921st FR, Kep, 21 June 1966

Phan Van Tuc was flying this aircraft on 21 June 1966 when he shot down the F-8E of VF-211 pilot Lt Cdr Cole Black. This aircraft was unpainted at the time, and it was marked with two red stars above the nose number to denote its pilots' successes. These were later overpainted green when the jet was camouflaged in the scheme depicted here.

6

MiG-17F 'Fresco-C' 2019 of Nguyen Van Bay, 923rd 'Yen The' FR, Noi Bai, 26 April 1966

VPAF records indicate that on 26 April 1966 Luu Huy Chao and Nguyen Van Bay each shot down an F-4C and shared in the damaging of a third. Bay was flying this MiG-17F 'Fresco-C' when he claimed his first aerial victory. No USAF Phantom IIs were lost on this date.

7 and 8

MiG-17F 'Fresco-Cs' 2137 and 2519 of the 923rd FR, Kep, 1966

The 923rd FR was usually able to put up two to four MiG-17s to engage eight to 16 F-4 Phantom IIs – a typical number assigned by the USAF or US Navy to a large strike mission. During attacks of this size, the American aircraft would usually launch up to eight AIM-9 Sidewinder

missiles. As the Vietnamese pilots were unable to spot them all, the VPAF organised small groups on the ground with hand-held radios to warn the MiG pilots of the approach of missiles 'on your left' or 'on your right'. Later, the fin tips of many MiG-17s were painted red, blue or black to enable ground observers to identify the aircraft and pass instructions accordingly – 'Blue, danger on your left, turn hard!' These messages enabled the MiG pilots to employ high-g manoeuvres to avoid the missiles.

9

MiG-17F 'Fresco-C' 2072 of Le Quang Trung, 923rd FR, Gia Lam, 17 August 1966

On 17 August 1966, Le Quang Trung shot down the 354th TFS/355th TFW F-105F of Majors J W Brand and D M Singer while flying this fighter, which was then unpainted. The jet was eventually marked with five red stars above the nose number, although these were overpainted when the MiG-17 received this green and brown scheme.

10

MiG-17F 'Fresco-C' 2431 of Hoang Van Ky, 923rd FR, Hoa Lac, 5 February 1967

VPAF records state that Hoang Van Ky was flying this aeroplane during an aerial engagement on 5 February 1967 when he shot down an F-4 (no Phantom IIs were lost on this date). Ky had been credited with shooting down two F-4s and two F-105s, together with sharing in the destruction of a third Thunderchief, by the time he was killed in action on 5 June 1967.

11

Shenyang J-5 (MiG-17 'Fresco-A') 1046 of the North Korean 'Doan Z' unit, Kep, March 1967

North Korean pilots flew this Chinese-built J-5 from Kep during 1967-68, this veteran aircraft having arrived in Vietnam with the first batch of fighters supplied to the VPAF by China in 1965.

12

MiG-17F 'Fresco-C' 2076 of Hoang Van Ky, 923rd FR, Kep, March 1967

The Kep-based MiG-17 pilots claimed three victories while flying this aircraft between 1966 and the end of March 1967. Hoang Van Ky also flew 'Red 2076' during the fierce aerial battles of early 1967.

13

Shenyang J-5 (MiG-17F 'Fresco-C') 2036 of Luu Huy Chao, 923rd FR, Gia Lam, 19 April 1967

Luu Huy Chao was flying this J-5 when his four-ship flight, which was comprised of Le Hai, Nguyen Van Bay and Hoang Van Ky, was ordered to engage a formation of F-105s over Cam Thuy on 19 April 1967. The Thunderchiefs were able to escape towards the Gulf of Tonkin, however.

14

MiG-17F 'Fresco-C' 2537 of Nguyen Van Bay, 923rd FR, Kien An, 24 April 1967

On 24 April 1967 the VPAF's most successful MiG-17 pilot, Nguyen Van Bay, was flying this fighter when he shot down the VF-114 F-4B flown by Lt Cdr C E Southwick and Ens J W Laing for his seventh victory.

15

Shenyang J-5 (MiG-17 'Fresco-A') 1033 of Vo Van Man, 923rd FR, Gia Lam, May 1967

Vo Van Man frequently flew this aircraft during the aerial battles of May

1967. Indeed, he was shot down and killed whilst at the jet's controls on 14 May, falling victim to an AIM-7E missile fired from the 480th TFS/366th TFW F-4C of Maj S O Bakke and Capt R W Lambert.

16

MiG-17F 'Fresco-C' 2087 of Nguyen Phi Hung, 923rd FR, Gia Lam, 12 August 1967

Nguyen Phi Hung was flying this fighter when he provided cover for his flight leader, Nguyen Huu Tao, during an engagement with USAF aircraft on 12 August 1967. Tao was duly credited with shooting down an F-4C in the Duong Bridge area. There were no Phantoms II lost in aerial combat on this date according to USAF records.

17

Shenyang J-5 (MiG-17F 'Fresco-C') 2315 of Nguyen Phi Hung, 923rd FR, Gia Lam, October 1967

Nguyen Phi Hung regularly flew this fighter over North Vietnam between October 1967 and July 1968, during which time he was credited with five aerial victories to elevate him to ace status. It is unclear which claims, if any, he made in 2315.

18

Shenyang J-5 (MiG-17F 'Fresco-C') 2055 of Le Hai, 923rd FR, Kien An, 19 November 1967

Le Hai and Nguyen Dinh Phuc claimed to have shot down two F-4Bs from VF-151 on 19 November 1967, although US Navy records only confirmed Hai's victory over the Phantom II flown by Lt(jg)s J E Teague and T G Stier. The second F-4, flown by Lt Cdr C D Clower and Lt(jg) W O Estes, was indeed lost on this mission, the jet possibly being brought down by debris from the Teague/Stier aircraft.

19

Shenyang J-5 (MiG-17F 'Fresco-C') 2011 of Luu Huy Chao, 923rd FR, Gia Lam, 14 December 1967

This unusually camouflaged Shenyang J-5 was credited with nine aerial victories over US aircraft. Ace Luu Huy Chao was flying it when he claimed to have shot down an F-8 on 14 December 1967 for his fifth victory. No Crusader loss was, however, reported by the US Navy on this day. This aeroplane survived the war and is presently displayed within the VPAF Museum in Hanoi.

20

MiG-17F 'Fresco-C' 2039 of Luu Huy Chao, 923rd FR, Gia Lam, 17 December 1967

Three days after 'making ace', Luu Huy Chao was flying this natural metal fighter when he downed the 497th TFS/8th TFW F-4D of Maj K R Fleenor and 1Lt T L Boyer south of Yen Bai.

21

MiG-17F 'Fresco-C' 2044 of Le Hai, 923rd FR, Gia Lam, 17 December 1967

Le Hai was flying this fighter on 17 December 1967 when he claimed to have downed a USAF F-4 over Hoa Lac with three bursts of gunfire. His victory was not confirmed by USAF records, however.

22

MiG-17F 'Fresco-C' 2064 of Nguyen Phi Hung, 923rd FR, Tho Xuan, 1968

The four red stars displayed on this fighter denote the aerial victories credited to its pilots. Nguyen Phi Hung frequently flew 2064 during the aerial battles of 1967-68, although he was eventually killed on 9 July 1968 when his fighter was shot down by the VF-191 F-8E flown by Lt Cdr J B Nichols.

23

Shenyang J-5 (MiG-17F 'Fresco-C') 3020 of Le Hai, 923rd FR, Tho Xuan, 3 August 1969

Le Hai added a further aerial victory to the seven denoted by red stars displayed on this aircraft when he shot down a Firebee drone over North Vietnam on 3 August 1969. He had previously claimed an F-4 in 3020 over Thanh Chuong on 14 June 1968, Hai stating the he had hit the jet with two bursts of fire at an altitude of 2000 m, causing the Phantom II to crash into the sea. USAF loss records do not corroborate his claim, however.

24

MiG-15UTI 2613 of the 921st FR, Noi Bai, 1966

The MiG-15UTIs operated by the 'Sao Do' Fighter Regiment were supplied from the USSR either unpainted or with a light grey finish overall. They were kept busy flying training sorties in parallel with MiG-17 and MiG-21 combat operations during 1966.

25

MiG-15UTI 2717 of the 923rd FR, Kep, 1967

This MiG-15UTI was camouflaged with the 'snake-green' scheme similar to that hastily applied to MiG-17Fs operated by the 923rd from Kep in 1967. During the air war's early stages there were no shelters on the air base so the MiGs were painted in this scheme and hidden under trees.

26

MiG-15UTI 2831 of the 925th FR, Yen Bai, 1969

This MiG-15UTI was also amongst the four two-seaters that were supplied from China to the 925th FR in February 1969. With the MiG-19s initially proving hard to maintain in an airworthy condition, the two-seater 'Midgets' were heavily tasked by pilots needing to build up their flying hours.

27

Shenyang JJ-5 1507 of the 925th FR, Yen Bai, April 1974

The Chinese-built two-seat JJ-5 fighter-trainer was a development of the J-5, featuring the engine and fuselage of the latter machine and the two-seat cockpit of the MiG-15UTI. Four arrived from Nanning, China, in April 1974 to aid in the training of Vietnamese pilots at Yen Bai.

28

Shenyang J-6 (MiG-19S 'Farmer-C') 6026 of Le Quang Trung, 925th FR, Yen Bai, 1969

Le Quang Trung, 925th FR base commander at Yen Bai, frequently flew this J-6 in 1969-70. He had become an ace while flying the MiG-17 when he achieved six aerial victories over four F-105s, an F-8 and an A-1 (he was only officially credited with five kills, however). On 6 April 1970 Trung was killed while flying a MiG-19 on a training flight from Yen Bai.

29

Shenyang J-6 (MiG-19S 'Farmer-C') 6045 of the 925th FR, Noi Bai, 14 March 1974

This aircraft was used by Nguyen Hong Son 'B' when he test-fired the first K-13 'Atoll' AAM from a VPAF J-6 on 14 March 1974.

30

Shenyang J-6 (MiG-19S 'Farmer-C') 6066 of the 925th FR, Noi Bai, April 1974

One of 24 J-6s supplied to the VPAF from Nanning in April 1974 as combat attrition replacements, this aircraft was operated by the Vietnamese in its original Chinese camouflage scheme.

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